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1981

ILLINOIS ANNUAL AIR QUALITY REPORT

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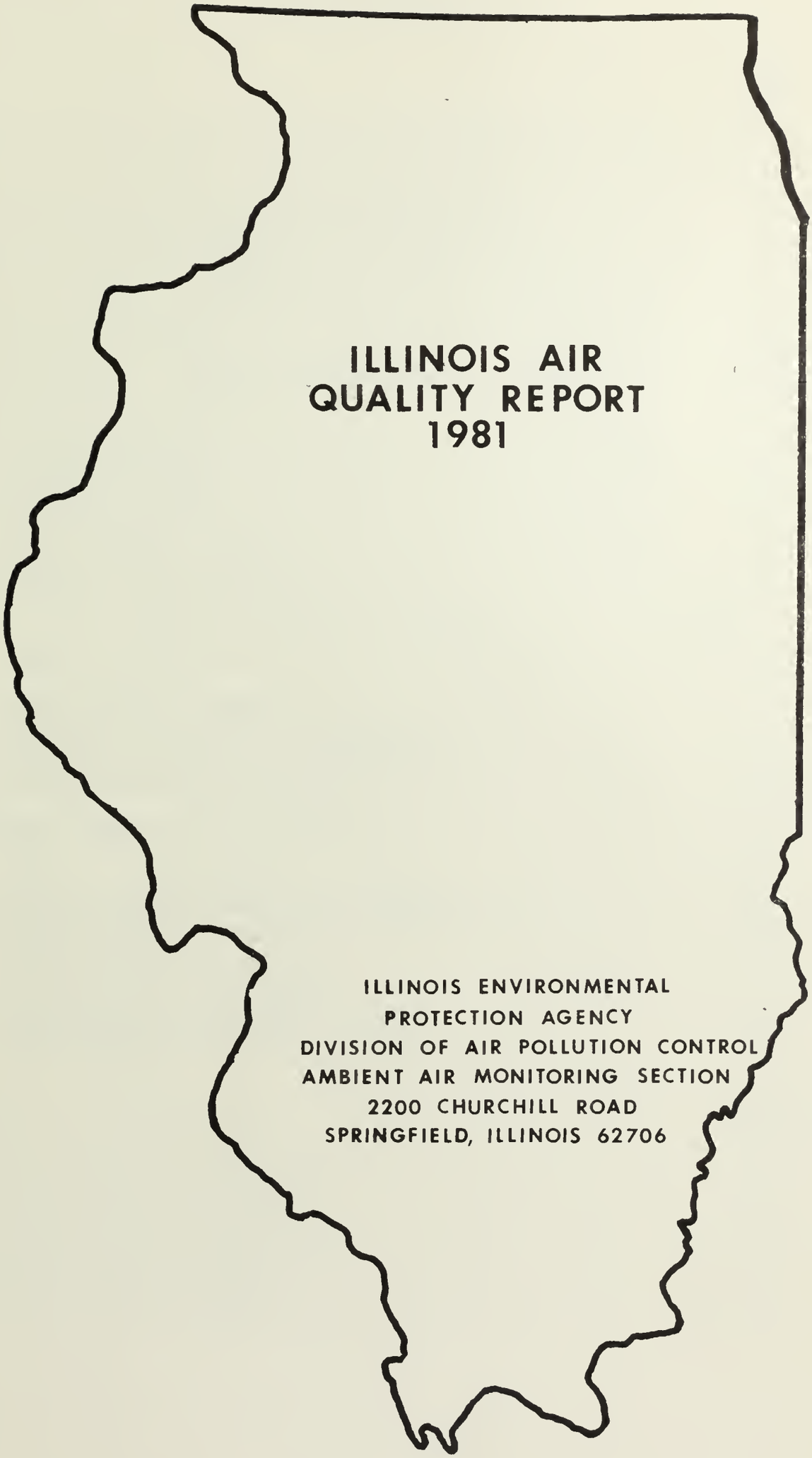

ILLINOIS AIR QUALITY REPORT 1981

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
AMBIENT AIR MONITORING SECTION
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1.0 Public Participation

Citizens who wish to monitor air quality improvement efforts or to participate in making decisions about air pollution control have a number of avenues open to them. In Illinois air clean-up responsibilities are divided among state, local and federal authorities. Each level of government has built-in check points where citizens can review plans for future programs or progress in existing ones.

This Annual Air Quality Report is just one of many ways the Illinois EPA keeps the public informed of state air pollution control activities. The federal EPA, likewise, provides a steady flow of information about its programs, and many local government agencies publish newsletters and bulletins about their activities.

All of this information can be more confusing than helpful, however, if one tries to digest it without understanding the basic divisions of responsibility among the many government bodies. To get a picture of the overall organization, one needs to start with the federal Clean Air Act.

It was just over a decade ago when the federal government got serious about air pollution. It adopted the Clean Air Act with ambitious clean air deadlines and set up a federal-state partnership to accomplish its goals. States were ordered to assess the pollution porblems within their individual borders and to report back with a plan to clean-up areas with poor air quality.

To review these state plans and to set air quality health standards, the Act established the federal EPA (USEPA). To ensure that pollution problems would not worsen, the USEPA was given the responsibility to set uniform, nationwide emission standards for newly constructed industry. States were given the job of finding ways to cut back the pollution from plants not covered by federal action. Some local governments had already started their own pollution control programs, but for most of the states, there was no organized control effort underway.

The adoption of the initial Illinois State Implementation Plan for Air Pollution Control (SIP) in 1971 marked the beginning of a concerted statewide pollution control initiative. Since those early days, there has been substantial progress in reducing pollution. This is documented throughout the Annual Air Quality Report. But the report also shows that the state is still a long way from its goal of providing clean air to all its citizens.

In determining what else needs to be done, there is ample opportunity for public participation. To find out how to get involved, read the organization descriptions below.

United States Environmental Protection Agency

Although it is not a state organization, the USEPA has a great amount of influence over Illinois' air pollution program. The federal Clean Air Act

has set some fairly strict guidelines to follow and has given the USEPA final approval authority over all state air pollution plans. Through this power of final approval, the USEPA can ensure all state programs make steady progress.

The most important USEPA decisions affecting state programs and air pollution sources are published first as proposals in the Federal Register. After a comment period, the final decision is published along with a response to comments. Some information about non-regulatory USEPA actions is published in the Federal Register, but most information is released in USEPA publications and newsletters. To get on one of these mailing lists, contact the USEPA regional office in Chicago, 230 South Dearborn, 60604. One monthly bulletin is devoted entirely to public participation opportunities.

Illinois Environmental Protection Agency

The Illinois EPA is one of three state organizations set up to handle pollution problems. (The other two are the Pollution Control Board and the Department of Energy and Natural Resources.) The Agency operates a statewide air pollution program. It investigates the need for regulations; it monitors air quality; files complaints against pollutors and it works with industry to ensure proper air pollution controls are employed.

To keep the public informed of its activities, the Air Division publishes reports like the Annual Ambient Air Quality Report. A "SIP Newsletter" is also published periodically and proposals for new regulations are mailed directly to persons on the Air Division mailing list. To get on the mailing list for these publications, write the Division of Air Pollution Control, Illinois EPA, 2200 Churchill Road, Springfield, Illinois 62706.

Certain types of Agency decisions have public participation built into the process. Official changes to the SIP, for example, must be presented at a public hearing before the state can adopt the change. Certain permit applications from industry must undergo a period of public review before a final decision can be made on issuing the permit.

For both SIP revisions and permit applications, the Agency prepares a document explaining the important issues and mails it to interested parties. Hearing notices are also published in newspapers.

Illinois Pollution Control Board

The Board is a quasi-judicial, quasi-legislative body. It is the court of original jurisdiction for cases of alleged violations of the Illinois Environmental Protection Act and air pollution regulations passed subsequent to the Act. As a legislative body, the Board adopts industry emission regulations and other air pollution rules.

State law allows individual citizens to file cases against pollutors before the Board and to petition the Board to adopt new air pollution regulations. The instructions for filing actions are contained in the Board's Procedural Rules.

The Board publishes a newsletter, Environmental Register, which contains the text of all proposed regulations, adopting orders and opinions, notices of hearings, meetings and conferences plus associated news items. Subscriptions are available from the Center of Business Management, Illinois State Chamber of Commerce, 20 North Wacker Drive, Chicago, Illinois 60606 (312/372-7373).

Local Government Agencies

Local law enforcement agencies have the authority to enforce the provisions of the Illinois Environmental Protection Act and its supporting regulations passed by the Pollution Control Board. Local communities can adopt their own air pollution ordinances as long as they do not confilct with state regulations. Several have set up their own local pollution control programs and many others have working agreements with the Illinois EPA to find ways to reduce automobile pollution.

Metropolitan planning agencies in the Quad Cities, Peoria, Chicago, and Metro East St. Louis also assist in preparing long range transportation related pollution control programs. All of these plans contain actions that the local communities intend to take to help solve auto pollution problems. Public review of these plans is encouraged.

2.0 AIR POLLUTANTS: SOURCES, HEALTH & WELFARE EFFECTS

2.1 PARTICULATE MATTER

Not all air pollutants are in the gaseous form. Small solid particles and liquid droplets, collectively called particulates or aerosols, are also present in the air in great numbers, and may constitute a pollution problem. Particulates entering the atmosphere differ in size and chemical composition. The effects of particulates on health and welfare are directly related to their size and chemical composition.

Particulate matter in the atmosphere consists of solids, liquids, and liquids-solids in combination. Suspended particulates generally refer to particles less than 100 microns in diameter (human hair is typically 100 microns thick). Particles larger than 100 microns will settle out of the air under the influence of gravity in a short period of time.

Typical sources emitting particles into the atmosphere are combustion of fossil fuels (ash and soot), industrial processes (metals, fibers, etc.), fugitive dust (wind and mechanical erosion of local soil) and photochemically produced particles (complex chain reactions between sunlight and gaseous pollutants). Combustion and photochemical products tend to be smaller in size (less than 1 micron); fugitive dust and industrial products are typically larger in size (greater than 1 micron).

Particles which cause the most health and visibility difficulties are those less than 1.0 microns in size. These particles are also the most difficult to reduce in numbers by the various industrial removal techniques. Rainfall-washout accounts for the major removal of these smaller particles from the air.

One of the major problems associated with high concentrations of particulates is that the interaction between the particles, sunlight, and atmospheric moisture can potentially result in climatic effects and diminished visibility (haze). Particles play a key role in the formation of clouds, and emissions of large numbers of particles can, in some instances, result in local increases in cloud formation and, possibly precipitation. Particles in the size range of 0.1 to 1.0 microns are the most efficient in scattering visible light (wave length 0.4 to 0.7 microns) thereby reducing visibility. Particles combined with high humidity can result in the formation of haze which can cause hazardous conditions for the operation of motor vehicles and aircraft.

Particulate pollutants enter the human body by way of the respiratory system and their most immediate effects are upon this system. The size of the particle determines its depth of penetration into the respiratory system. Particles over 5 microns are generally deposited in the nose and throat. Those that do penetrate deeper in the respiratory system to the air ducts (bronchi) are often removed by ciliary action. Particles

ranging in size from 0.5 - 5.0 microns in diameter can be deposited in the bronchi, with few reaching the air sacts (alveoli). Most particles deposited in the bronchi are removed by the cilia within hours. Particles less than 0.5 micron in diameter reach and may settle in the alveoli. The removal of particles from the alveoli is much less rapid and complete than from the larger passages. Some of the particles retained in the alveoli are absorbed into the blood.

Besides particulate size, the oxidation state, chemical composition, concentration, and length of time in the respiratory system contribute to the health effects of particulates. Particulates have been associated with increased respiratory diseases (asthma, bronchitis, emphysema), cardiopulmonary disease (heart attack), and cancer.

Plant surfaces and growth rates may be adversely affected by particulate matter. Particulate air pollution also causes a wide range of damage to materials, and includes corrosion of metals and electrical equipment, and the soiling of textiles and buildings.

2.2 SULFUR DIOXIDE

Sulfur dioxide is an atmospheric pollutant which results from combustion processes (mainly burning of fossil fuels containing sulfur compounds), refining of petroleum, manufacture of sulfuric acid, and smelting of ores containing sulfur. Reduction of sulfur dioxide pollution levels can generally be achieved through the use of low sulfur content fuels or the use of chemical sulfur removal systems.

Once in the atmosphere some sulfur dioxide can be oxidized (either photochemically or in the presence of a catalyst) to SO_3 (sulfur trioxide). With water vapor present, SO_3 is readily converted to sulfuric acid mist. Other basic oxides combine with SO_3 to form sulfate aerosols. Sulfuric acid droplets and other sulfates are thought to account for about 5 to 20 percent of the total suspended particulate matter in urban air. Many of the resultant health problems attributed to SO_2 may be a result of the oxidation of SO_2 to other compounds.

The effects of SO_2 on health are irritation and inflammation of tissue that it directly contacts. Inhalation of SO_2 causes bronchial constriction resulting in an increased resistance to air flow, reduction of air volume, and an increase of respiratory rate and heart rate.

SO_2 can exacerbate pre-existing respiratory diseases (asthma, bronchitis, emphysema). The enhancement (synergism) by particulate matter of the toxic response to sulfur dioxide has been observed under conditions which would promote the conversion of sulfur dioxide to sulfuric acid. The degree of enhancement is related to the concentration of particulate matter. A twofold to threefold increase of the irritant response to sulfur dioxide is observed in the presence of particulate matter capable of oxidizing sulfur dioxide to sulfuric acid.

Sulfuric acid (H_2SO_4) inhalation causes an increase in the respiratory system's mucous secretions, which reduces the system's ability to remove particulates via mucociliary clearance. This can result in an increase incidence of respiratory infection.

2.3 CARBON MONOXIDE

The major source of carbon monoxide (CO) is motor vehicles. The USEPA has kept under its jurisdiction the regulation of emission control equipment on new motor vehicles while the State's responsibility for reducing excessive ambient carbon monoxide levels is exercised by developing transportation plans for congested urban areas.

The toxic effects of high concentrations of CO on the body are well known. Carbon monoxide is absorbed by the lungs and reacts with hemoglobin (the oxygen carrying molecule in the blood) to form carboxyhemoglobin (CHOb). This reaction reduces the oxygen carrying capacity of blood because the affinity of hemoglobin for CO is over 200 times that for oxygen. The higher the percentage of hemoglobin bound up in the form of carboxyhemoglobin, the more serious is the health effect.

The level of COHb in the blood is directly related to the CO concentration of the inhaled air. For a given ambient air CO concentration, the COHb level in the blood will reach an equilibrium concentration after a sufficient time period. This equilibrium COHb level will be maintained in the blood as long as the ambient air CO level remains unchanged. However, the COHb level will slowly change in the same direction as the CO concentration of the ambient air as a new equilibrium of CO in the blood decreases.

The lowest CO concentrations shown to produce adverse health effects result in aggravation of cardiovascular disease. Studies demonstrate that these concentrations have resulted in decreased exercise time before the onset of pain in the chest and extremities of individuals with heart or circulatory disesases. Slightly higher CO levels have been associated with decreases in vigilance, ability to discriminate times intervals, and exercise performance.

Evidence also exists indicating a possible relationship between CO and heart attacks, the development of cardiovascular disease, and fetal development.

Studies on the existing ambient levels of CO do not indicate any adverse effects on vegetation, materials, or other aspects of human welfare.

2.4 NITROGEN DIOXIDE

Nitrogen gas (N_2) is an abundant and inert gas which makes up almost 80 percent of the earth's atmosphere. In this form, it is harmless to man and essential to plant metabolism. Due to its abundance in the air, it is

a frequent reactant in many combustion processes. When combustion temperatures are extremely high, as in the burning of coal, oil, gas, and in automobile engines, atmospheric nitrogen (N_2) may combine with molecular oxygen (O_2) to form various oxides, NO_x. Of these, nitric oxide (NO) and nitrogen dioxide (NO_2) are the most important contributors to air pollution; NO_x generally is used to represent these. Nitric oxide (NO) is a colorless and odorless gas. It is the primary form of NO_x resulting from the combustion process. NO_x contributes to haze and a reduction of visibility. NO_x is also known to cause deterioration and fading of certain fabrics, and damage to vegetation. Depending on concentration and extent of exposure, plants may suffer leaf lesions and reduced crop yield.

Sensitivity of plants to nitrogen oxides depends on a variety of factors including species, time of day, light, stage of maturity, and the presence or absence of other air pollutants such as sulfur dioxide and ozone.

There is a lack of strong evidence associating health effects with most nitrogen oxide compounds. NO_2, a secondary derivative of atmospheric nitric oxide (not considered harmful to humans at levels found in the atmosphere), however, has been clearly established as exerting detrimental effects on human health and welfare.

NO_2 can cause an impairment of dark adaptation at concentrations as low as 0.07 ppm. NO_2 can cause an increase in airway resistance, an increase in respiratory rate, an increase in sensitivity to bronchoconstrictors, a decrease in lung compliance, and an enhanced susceptibility to respiratory infections. NO_2 is a deep lung irritant capable of producing pulmonary edema if inhaled in sufficient concentrations. When NO_2 is inhaled in concentrations with other pollutants, the effects are additive.

NO_x may also react with water to form corrosive nitric acids, a major component of acid precipitation. Additionally, NO_x and various other pollutants (e.g., hydrocarbons) may react in the presence of sunlight to produce photochemical oxidants. These are extremely unstable compounds which damage plants and irritate both the eyes and respiratory system of people. Ozone (O_3) and a group chemicals called peroxyacetyl nitrates (PAN) are the major constituents of photochemical oxidants.

2.5 HYDROCARBONS

Hydrocarbons were originally recognized and controlled as air pollutants due to their role in the production of ozone in the atmosphere. This remains the primary purpose for hydrocarbon control. However, concern is growing over the possible relationship between exposure to specific hydrocarbons and cancer, genetic damage, birth defects and other adverse health effects. Thus, hydrocarbon control may not only reduce ozone levels but may also reduce the direct effects of hydrocarbons on human health.

2.6 PHOTOCHEMICAL OXIDANTS (i.e., OZONE, PAN)

Photochemical oxidants result from a complex series of atmospheric reactions initiated by sunlight. When reactive (non-methane) hydrocarbons and nitrogen oxides accumulate in the atmosphere and are exposed to the ultraviolet component of sunlight, the formation of new compounds, including ozone and peroxyacetylnitrate, takes place.

Absorption of ultraviolet light energy by nitrogen dioxide results in its dissociation into nitric oxide and an oxygen atom. The oxygen atoms for the most part react with atmospheric molecular oxygen (O_2) to form ozone. In general, nitrogen oxide will react with ozone to re-form nitrogen dioxide, completing the cycle. A build-up of ozone above the equilibrium concentration defined by the reaction cycle given above results when nitrogen oxide reacts with non-methane hydrocarbons. Oxygen atoms from the hydrocarbon radical oxidize nitrogen oxide to nitrogen dioxide without ozone being used up. Thus ozone concentrations are not depleted and can build-up quickly.

Ozone can also be formed naturally in the atmosphere by electrical discharge, and in the stratosphere by solar radiation; the former process is not capable of producing significant urban concentrations of this pollutant; however, there is some belief that incursion of ozone from the stratosphere can contribute significantly to elevated ground level concentrations of ozone under certain meteorological conditions.

Injury to vegetation is one of the earliest manifestations of photochemical air pollution, and sensitive plants are useful biological indicators of this type of pollution. The visible symptoms of photochemical oxidant produced injury to plants may be classified as: (1) acute injury, identified by cell collapse with subsequent development of necrotic patterns; (2) chronic injury, identified by necrotic patterns or with other pigmented patterns; and (3) physiological effects, identified by growth alterations, reduced yields, and changes in the quality of plant products. The acute symptoms are generally characteristic of a specific photochemical oxidant; though chronic injury patterns are not. Ozone injury to leaves is identified as a stippling or flecking. Adverse effects on sensitive vegetation have been observed from exposure to photochemical oxidant concentrations of about 100 ug/m^3 (0.05 ppm) for 4 hours.

Adverse effects on materials (rubber products and fabrics) from exposure to photochemical oxidants have not been precisely quantified, but have been observed at the levels presently occurring in many urban atmospheres.

Ozone accelerates the aging of many materials, resulting in rubber cracking, dye fading and paint erosion. These effects are linearly related to the total dose of ozone and can occur at very low levels, given long duration exposures.

Ozone is a pulmonary irritant that affects the respiratory mucous membranes, other lung tissues and respiratory functions. Clinical and epidemiological studies have demonstrated that ozone impairs the normal mechanical function of the lung, causing alterations in respiration; the most characteristic of which are shallow, rapid breathing and a decrease in pulmonary compliance. Exposure to ozone results in clinical symptoms such as chest tightness, coughing, and wheezing. Alterations in airway resistance can occur, especially to those with respiratory diseases (asthma, bronchitis, emphysema). These effects may occur in sensitive individuals, as well as in healthy exercising persons, at short-term ozone concentrations between 0.15 and 0.25 ppm.

Ozone exposure increases the sensitivity of the lung to bronchoconstrictive agents such as histamine, acetycholine, and allergens, as well as increasing the individual's susceptibility to bacterial infection. Simultaneous exposure to ozone and SO_2 can produce larger changes in pulmonary function that exposure to either pollutant alone.

Peroxyacetylnitrate (PAN) is an eye irritant, and its effects often occur in conjunction with the effects of ozone.

Two characteristics of ozone and oxidant exposures should be cited: (1) ozone itself is a primary cause of most of the health effects reported in toxicological and experimental human studies, and the evidence for attributing many health effects to this substance alone is very compelling, and (2) the complex of atmospheric photochemical substances is known to produce health effects, some of which are not attributable to pure ozone but may be caused by other photochemical substances in combination with ozone.

2.7 LEAD

Atmospheric lead comes primarily from combustion of leaded gasoline. Other sources, however, such as lead smelters, battery manufacturers, iron and steel producers and others can contribute significant amounts of lead to the immediate vicinity.

Lead is a stable compound which persists and accumulates both in the environment and in the human body. Lead enters the human body through ingestion and inhalation with consequent absorption into the bloodstream and distribution to all body tissues. Clinical, epidemiological and toxicological studies have demonstrated exposure to lead adversely affects human health.

Low level lead exposure has been found to interfere with specific enzyme systems and blood production. Kidney and neurological cell damage has also been associated with lead exposure. Animal studies have demonstrated that lead can contribute to reduced fertility and birth defects. Children are the population segment most sensitive to many of lead's adverse effects.

Other serious potential effects from lead exposure are behavioral. Brain damage has been well documented in cases of severe lead poisoning in children. Restlessness, headaches, tremors, and general symptoms of mental retardation have been noted. The brain seems to be particularly sensitive to lead poisoning, yet it is unclear whether low level exposure will result in brain disfunction. Although evidence exists which indicates that children with above-normal blood lead levels are more likely to demonstrate poor academic performance, the studies remain inconclusive.

2.8 ILLINOIS AMBIENT AIR QUALITY STANDARDS

Consistent with the intent of the Environmental Protection Act of the State of Illinois, Illinois has adopted ambient air quality and episode standards that specify maximum permissible short term and long term concentrations of various contaminants in the atmosphere. Ambient air quality and episode standards are limits on atmospheric concentrations of air contaminants established for the purpose of protecting the public health and welfare.

The Illinois and National Ambient Air Quality Standards consist of a primary and secondary standard for each pollutant (contaminant) as presented in Table 1. The Illinois Air Pollution Episode Levels are presented in Table 2. The primary standard and episode criteria represents the level of air quality which is necessary to protect the public health. The secondary standard defines the level of air quality which is necessary to protect the public welfare (vegetation, materials, property). The standards are legally enforceable limitations, and any person causing or contributing to a violation of the standards is subject to enforcement proceedings under the Environmental Protection Act. The standards have also been designed for use as a basis for the development of implementation plans by State and local agencies for the abatement and control of pollutant emissions from existing sources, and for the determination of air contaminant emission limitations to ensure that population, industry and economic growth trends do not add to the region's air pollution problems.

The first use of our air resources is to sustain public health. Air entering the respiratory tract must not menace health. Therefore, the air quality standards set, must as a minimum, provide air which will not adversely affect, through acute or chronic symptoms, the public health. Air contaminants increase the aggravation and the production of respiratory and cardiopulmonary diseases.

The second use of our air resources is to protect the public welfare. This includes, among other things, effects on crops, vegetation, wildlife, visibility and climate, as well as effects on materials, economic values and on personal comfort and well-being.

TABLE 1

SUMMARY OF NATIONAL AND ILLINOIS[1]
AMBIENT AIR QUALITY STANDARDS

POLLUTANT	TIME OF AVERAGE	PRIMARY STANDARD (AT 25°C and 760 mm of HG)	SECONDARY STANDARD
PARTICULATE MATTER (TSP)	Annual Geometric Mean 24 hour	75 ug/m^3 260 ug/m^3	60 ug/m^3 150 ug/m^3
SULFUR DIOXIDE (SO_2)	Annual Arithmetic Mean 24 hour 3 hour	0.03 ppm (80 ug/m3) 0.14 ppm (365 ug/m^3) None	None None 0.5 ppm (1300 ug/m3)
CARBON MONOXIDE (CO)	8 hour 1 hour	9 ppm (10 mg/m^3) 35 ppm (40 mg/m^3)	Same as Primary Same as Primary
PHOTO-CHEMICAL OXIDANTS (O_3)	1 hour - State 1 hour/day - Federal	0.08 ppm (160 ug/m^3) 0.12 ppm (235 ug/m^3)	Same as Primary Same as Primary
NON-METHANE HYDROCARBONS (N-MHC)	3 hour (6 to 9 AM)	0.24 ppm (160 ug/m^3)	Same as Primary
NITROGEN DIOXIDE (NO_2)	Annual Arithmetic Mean	0.05 ppm (100 ug/m^3)	Same as Primary
LEAD (Pb)	Quarterly Arithmetic Mean	1.5 ug/m^3	Same as Primary

[1] Illinois Air Quality Standards are identical to National Air Quality Standards with the exception of lead for which no state standard exists and for ozone as stated above.

NOTE: All standards with averaging time of 24 hours or less are not to be exceeded more than once per year.

TABLE 2

AIR POLLUTION EPISODE LEVELS

POLLUTANT	WATCH	YELLOW ALERT	RED ALERT	EMERGENCY
SUSPENDED PARTICULATE MATTER (TSP)	2 hour 5 COH-625 ug/m^3	24 hour 3 COH-375 ug/m^3	24 hour 5 COH-625 ug/m^3	24 hour 7 COH-875 ug/m^3
SULFUR DIOXIDE (SO_2)	2 hour 0.30 ppm	4 hour 0.30 ppm	4 hour 0.35 ppm	4 hour 0.40 ppm
PRODUCT (SO_2 x TSP)	2 hour 1.0	4 hour 1.0 24 hour 0.20	4 hour 2.0 24 hour 0.80	4 hour 2.4 24 hour 1.20
CARBON MONOXIDE (CO)	2 hour 30 ppm	8 hour 15 ppm	8 hour 30 ppm	8 hour 40 ppm
PHOTO-CHEMICAL OXIDANTS (O_3)	(ADVISORY) 2 hour 0.07 ppm	1 hour .17 ppm	1 hour .30 ppm	1 hour .50 ppm
NITROGEN DIOXIDE (NO_2)	2 hour 0.40 ppm	1 hour 0.60 ppm 24 hour 0.15 ppm	1 hour 1.20 ppm 24 hour 0.30 ppm	1 hour 1.60 ppm 24 hour 0.40 ppm
NON-METHANE HYDROCARBONS (N-MHC)	None	None	None	None

3.0 AIR SAMPLING NETWORK

3.1 DESCRIPTION OF THE AIR SAMPLING NETWORK

The Illinois air monitoring network is composed of instrumentation owned and operated by both the Illinois Environmental Protection Agency and by cooperating local agencies. This network has been designed to measure ambient air quality levels in the various Illinois Air Quality Control Regions (AQCR). These AQCR's were developed with consideration given to jurisdictional boundaries, urban-industrial centers, and climatological conditions. These factors, when evaluated concurrently, resulted in the designation of an area appropriate for the assessment of air quality and the implementation of air quality control measures. Historically, each AQCR was classified on the basis of known air pollutant concentrations or, where these were not known, estimated air quality. A map of the AQCR's in Illinois can be found at the beginning of the Regional air quality data section (Section 5.0).

Many local agencies and volunteers cooperate and support the operation of the Illinois air monitoring network. Table 3 contains a summary by AQCR of the distribution of air monitoring instruments which contribute to the Illinois air monitoring data bank. The Illinois air monitoring network contains both continuous and intermittent instruments. The continuous instruments operate throughout the year, while the noncontinuous instruments operate according to the schedule shown in Table 4. This is the official intermittent sampling schedule used by the Illinois EPA during 1981.

The Illinois air monitoring network is deployed along the lines described in the Illinois State Implementation Plan. The air monitoring network is dispersed throughout the State; however, major concentrations of monitors are found in the highly populated and industrialized AQCR 67 (Metropolitan Chicago) and AQCR 70 (Metropolitan East St. Louis).

The original emphasis in the design and operation of the Illinois air monitoring network was toward meeting the minimum instrument requirements based on the AQCR priority classification. An effort was made to locate instruments at sites which would be representative of air quality in the area. For reasons of ease of access and maintenance, several air monitoring instruments were often located at the same site. Recent emphasis has been placed on locating individual monitoring instruments at sites which are likely to measure the overall air quality impact of sources which are primary contributors of the pollutant being measured. As a result, although the total number of monitoring instruments within the network may remain the same, the number of individual monitoring sites will most likely increase.

TABLE 3

DISTRIBUTION OF AIR MONITORING INSTRUMENTS BY AIR QUALITY CONTROL REGION

Number of Samplers	65	66	67	68	69	70	71	72	73	74	75	Total
Total Suspended Particulates	6	2	67	1	7	18	3		4	5	8	121
Sulfur Dioxide (Continuous)	3		13		1	6	1		1	1	3	29
Nitrogen Dioxide/ Nitrogen Oxide (Continuous)			5									5
Ozone	3	1	21		2	7	1		2	2	4	43
Nitrogen Dioxide (Bubbler)			22									22
Carbon Monoxide	1		7		1	3			1		1	14
Hydrocarbons			2									2
Wind Systems	1		8		1	4			1	2	3	20
Total	14	3	145	1	12	38	5		9	10	19	256

TABLE 4

NON-CONTINUOUS SAMPLING NETWORK

Every 6th-day Sampling Schedule for 1981

1981

January

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

February

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

March

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

April

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

May

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

June

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

3.2a DIRECTORY OF AIR MONITORING SITES OPERATED DURING 1981

The following directory lists the air monitoring sites operated by the Illinois EPA and various cooperating agencies. The directory provides a distribution by parameter for each site by NAMS, SLAMS, or SPMS monitoring functions (see Section 3.1). An explanation of terms and equipment codes is provided at the end of the directory.

STATION	ADDRESS	OWNER/ OPERATOR	UTM COORD.	EQUIPMENT
65 BURLINGTON-KEOKUK INTERSTATE (IOWA - ILL.)				
KNOX COUNTY				
Galesburg (2740 001)	Library 40 East Simmons	Ill. EPA/City	N. 4535079 E. 721015	SLAMS - TSP
PEORIA COUNTY				
Peoria (6080 001)	610 N.E. Jefferson	Ill. EPA/Peoria Inspections Dept.	N. 4508172 E. 281481	NAMS - TSP
Peoria (6080 023)	Fire Station #4 2711 S.W. Jefferson	Ill. EPA/Peoria Inspections Dept.	N. 4505814 E. 278611	NAMS - TSP
Peoria (6080 024)	Fire Station #8 MacArthur & Hurlburt	Ill. EPA	N. 4507234 E. 279425	NAMS - SO_2, O_3 SPMS - WS/WD_n
Peoria (6080 027)	Maintenance Building 1604 Detweiller Dr.	Ill. EPA/Peoria Inspections Dept.	N. 4518407 E. 279012	SLAMS - TSP
Peoria (DISC) (6080 029)	Salvation Army 407 N.E. Adams	Ill. EPA	N. 4507925 E. 281401	SPMS - CO, WS/WD
Peoria (NEW/DISC) (6080 032)	Marina Corps of Engineers	Ill. EPA	N. 4508901 E. 283259	NAMS - SO_2
Peoria (NEW) (6080 033)	Sipp School Glen & University	Ill. EPA	N. 4513771 E. 279419	SLAMS - CO
Peoria Hts. (6120 001)	Peoria Hts. H.S. 508 E. Glen Ave.	Ill. EPA	N. 4513567 E. 281635	NAMS - O_3
TAZEWELL COUNTY				
East Peoria (2100 002)	East Peoria Bank 235 E. Washington	Ill. EPA/Peoria Inspections Dept.	N. 4505074 E. 281061	NAMS - TSP
Pekin (6060 002)	531 Court	Ill. EPA/Cilco	N. 4494067 E. 276117	NAMS - TSP
Pekin (6060 004)	Fire Station #3 272 Derby	Ill. EPA	N. 4492740 E. 275283	NAMS - SO_2
WARREN COUNTY				
Monmouth (NEW/DISC) (5160001)	Monmouth College	Ill. EPA	N. 4531650 E. 699158	SPMS - O_3

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER/ OPERATOR	UTM COORD.	EQUIPMENT
66 EAST CENTRAL ILLINOIS INTRASTATE				
CHAMPAIGN COUNTY				
Champaign (1140 002)	Regional Office Building 2125 South First St.	Ill. EPA	N. 4437728 E. 394197	SPMS - TSP
Champaign (1140 004)	Booker T. Washington Elem. Sch. 606 E. Grove C	Ill. EPA	N. 4442012 E. 395216	SLAMS - O_3
MC LEAN COUNTY				
Bloomington (0480 001)	Pantograph Building 301 West Washington	Ill. EPA/Daily Pantograph	N. 4483116 E. 330116	NAMS - TSP
67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.)				
COOK COUNTY				
Alsip (0140 001)	4500 West 123rd St.	Cook County OEC	N. 4613154 E. 43B956	SPMS - TSP, NO_2 (Bubbler)
Arlington Hts. (0200 001)	33 S. Arlington Hts. Rd.	Cook County OEC	N. 4659111 E. 418716	SLAMS - TSP
Arlington Hts. (0200 003)	Arlington Lakes Golf Course 1211 New Wilke Rd.	Ill. EPA	N. 4656882 E. 417024	SLAMS - O_3
Bedford Park (1540 002)	6535 S. Central	Bedford Park Env Quality Control Board	N. 4624549 E. 436827	SLAMS - TSP
Blue Island (0500 001)	Eisenhower H.S. 12700 Sacramento	Cook County OEC	N. 4612262 E. 442932	SLAMS - TSP SPMS - NO_2 Bubbler
Calumet City (0780 001)	Thorton Fractional H.S. 755 Pulaski Road	Cook County OEC	N. 4605938 E. 454802	SLAMS - TSP SPMS - NO_2 (Bubbler)
Calumet City (0780 002)	868 Marquette Avenue	Cook County OEC	N. 4607246 E. 452919	SLAMS - SO_2, NO/NO_2, O_3 SPMS - CO, WS/WO
Chicago Hts. (1240 001)	Bloom H.S. Oixie Highway & 10th Street	Cook County OEC	N. 4595888 E. 446172	SLAMS - TSP SPMS - NO_2 (Bubbler), SO_2 CO, O_3, WS/WD
Cicero (1340 001)	Roosevelt H.S. 15th St. & 50th Ave	Cook County DEC	N. 4634425 E. 437598	SLAMS - TSP SPMS - NO_2 (Bubbler)
Oes Plaines (1840 001)	Maine West H.S. 1755 S. Wolf Rd.	Cook County OEC	N. 4652290 E. 424858	SPMS - TSP, NO_2 (Bubbler)
Evanston (2360 001)	Police Oepartment 1454 Elmwood	Ill. EPA/City	N. 4654615 E. 443240	SLAMS - TSP
Evanston (2360 002)	Water Pumping Station 531 East Lincoln	Ill. EPA	N. 4656685 E. 444098	SLAMS - O_3
Flossmoor (2520 001)	Community H.S. 999 Kedzie Avenue	Cook County OEC	N. 4599302 E. 442080	SPMS - TSP, NO_2 (Bubbler)

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER/ OPERATOR	UTM COORD.	EQUIPMENT
Franklin Park (2620 001)	E. Leyden H.S. 3400 N. Rose St.	Cook County DEC	N. 4643567 E. 427981	SPMS TSP
Harvey (3180 D01)	Lowell School 157th and Lexington	Cook County DEC	N. 4605962 E. 445895	SLAMS - TSP SPMS - NO_2 (Bubbler)
Hillside (3420 001)	Proviso West H.S. Wolf Rd. & Harrison St.	Cook County DEC	N. 4635283 E. 425327	SPMS - TSP, ND_2 (Bubbler)
Lyons (NEW) (4480 001)	Fire Station #22 4043 Joliet Ave.	Cook County DEC	N. 4629580 E. 4319130	NAMS - TSP, SO_2
McCook (1540 D16)	Village Hall 50th St. & Glencoe	McCook Env. Board	N. 4627820 E. 43D808	SLAMS - TSP
Midlothian (5D80 001)	Breman H.S. 152D2 Crawford Ave.	Cook County DEC	N. 4607135 E. 440339	SPMS - TSP
Morton Grove (5320 001)	Fireside Motel 9111 Waukegan	Cook County DEC	N. 4655197 E. 433944	SLAMS - TSP SPMS - NO_2 (Bubbler)
Niles (5540 001)	Gemini H.S. 8955 Greenwood Ave.	Cook County DEC	N. 4654611 E. 43D623	SPMS - TSP
North Riverside (5680 001)	2350 Des Plaines Ave.	Cook County DEC	N. 4635938 E. 429543	SPMS - SD_2, NO/NO_2 CO, O_3, WS/WD
Oak Park (5740 DD2)	834 Lake Street	Cook County DEC	N. 4637456 E. 433771	SPMS - TSP, NO_2 (Bubbler)
Orland Park (5860 001)	Carl Sandburg H.S. 133rd and LaGrange Rd.	Cook County DEC	N. 4610925 E. 428641	SLAMS - TSP
Palatine (59DD 001)	Township H.S. 1000 Quentin Rd.	Cook County DEC	N. 4660703 E. 408549	SPMS - TSP
River Forest (6540 001)	Junior H.S. Lathrop & Oak Ave.	Cook County DEC	N. 4637969 E. 432456	SLAMS - TSP
Skokie (7160 005)	Niles North H.S. 980D Lawler	Cook County DEC	N. 4656493 E. 437740	SPMS - NO_2 (Bubbler)[d], WS/WD SLAMS - SO_2, CO, O_3
Summit (7520 001)	Graves School 6Dth and 74th Ave.	Cook County DEC	N. 4625734 E. 433104	SLAMS - TSP SPMS - NO_2 (Bubbler)
Wilmette (8360 001)	Central School 9th St. & Central Ave.	Cook County DEC	N. 4658469 E. 441870	SPMS - TSP, NO_2 (Bubbler)
Winnetka (8420 001)	Crow Island School 1112 Willow Road	Ill. EPA/ Evanston North Shore H.D.	N. 4661092 E. 438104	SLAMS - TSP
Chicago:				
Addams Elem. Sch. (1220 031)	10810 So. Ave. "H"	Chicago DCS	N. 4616172 E. 455765	SLAMS - TSP SPMS - ND_2 (Bubbler)
Anthony Elem. Sch. (1220 030)	9800 So. Torrence Ave.	Chicago DCS	N. 4618246 E. 453462	SLAMS - TSP
Bright Elem. Sch. (DISC) (122D D41)	10740 So. Calhoun	Ill. EPA	N. 4616364 E. 453277	SPMS - TSP
Calumet H.S. (1220 016)	8131 So. May St.	Chicago DCS	N. 4621623 E. 445907	SLAMS - TSP
Carver H.S. (1220 D18)	801 E. 133rd Place	Chicago DCS	N. 4611172 E. 449833	SLAMS - TSP

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER / OPERATOR	UTM COORD.	EQUIPMENT
Chicago Avenue Pumping Station (NEW) (1220 049)	805 N. Michigan	Chicago DCS	N. 4638327 E. 448339	NAMS - TSP
Chicago Vocational H.S. (1220 017)	2100 E. 87th St.	Chicago DCS	N. 4620648 E. 452351	SLAMS - TSP
Cooley Vocational H.S. (1220 047)	1450 Larrabee	Chicago DCS	N. 4639580 E. 446598	NAMS - TSP SPMS - NO_2 (Bubbler)
Edgewater (1220 037)	5358 N. Ashland Ave.	Chicago DCS	N. 4647469 E. 444580	SPMS - NO_2 (Bubbler
Farr Dormitory (1220 014)	3300 S. Michigan Ave.	Chicago DCS	N. 4631364 E. 448179	NAMS - TSP
Fenger Junior College (1220 010)	11220 So. Wallace	Chicago DCS	N. 4615296 E. 447098	SLAMS - TSP
G.S.A. Building (1220 005)	538 S. Clark	Chicago DCS	N. 4636074 E. 447763	SPMS - NO_2 (Bubbler)
Hale Elem. Sch. (1220 021)	6140 So. Melvina Ave.	Chicago DCS	N. 4625450 E. 435469	SLAMS - TSP
Lakeview H.S. (1220 004)	4015 No. Ashland Ave.	Chicago DCS	N. 4644882 E. 444537	SLAMS - TSP
Lincoln Park Zoo (NEW) (1220 045)	2200 N. Cannon Dr.	Cook County DEC	N. 4641197 E. 447450	NAMS - NO/NO_2, O_3
Logan Sq. (Ill. Bell) (1220 028)	2940 W. Cortland Ave.	Chicago DCS	N. 4640438 E. 441962	SLAMS - TSP
Logan Sq. (NEW) (1220 051)	3228 W. Palmer Ave.	Cook County DEC	N. 4641010 E. 441170	NAMS - SO_2, CO
Museum of Science & Industry (NEW) (1220 044)	57th & Museum	Cook County DEC	N. 4626420 E. 451556	SLAMS - O_3
Northwestern Univ. (1220 039)	Huron & Fairbanks Ct.	Ill. EPA	N. 4638049 E. 448549	NAMS - SO_2, NO/NO_2 SPMS - RHC^{nd}
Roseland Pump. Sta. (DISC) (1220 038)	351 W. 104th Street	Cook County DEC	N. 4616981 E. 447432	SLAMS - O_3
Southeast Police Station (NEW) (1220 050)	103rd & Luella	Cook County DEC	N. 4617243 E. 452756	NAMS - SO_2
South Water Filt. Plant (1220 032)	3300 E. Cheltenham Place	Chicago DCS	N. 4622722 E. 454709	SLAMS - TSP SPMS - NO_2 (Bubbler)
State Office Building (1220 040)	160 No. LaSalle	Ill. EPA	N. 4636950 E. 447500	NAMS - CO SLAMS - NO/NO_2 SPMS - SO_2, RHC^{nd}
Steinmetz H.S. (1220 011)	3030 No. Mobile Ave.	Chicago DCS	N. 4642679 E. 435148	SPMS - NO_2 (Bubbler)
Stevenson Elem. Sch. (1220 009)	8010 So. Kostner Ave.	Chicago DCS	N. 4621759 E. 439135	SPMS - NO_2 (Bubbler)
Stevenson Elem Sch. (1220 009)	8010 So. Kostner Ave.	Cook County DEC	N. 4621759 E. 439135	SLAMS - O_3
Sullivan H.S. (1220 020)	6631 No. Bosworth Ave.	Chicago DCS	N. 4650074 E. 444543	SLAMS - TSP

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER/ OPERATOR	UTM COORD.	EQUIPMENT
Taft H.S. (1220 003)	6545 W. Hurlbut St.	Chicago OCS	N. 4648111 E. 434438	SLAMS - O_3 SPMS - NO_2 (Bubbler)
Taft H.S. (1220 003)	6545 W. Hurlburt St.	Cook County OEC	N. 4648111 E. 434438	SLAMS - O_3
Washington H.S. (1220 022)	3500 E. 114th St.	Chicago DCS	N. 4615074 E. 455030	NAMS - TSP
DU PAGE COUNTY				
Addison (0060 001)	City Hall 130 W. Army Trail Rd.	Ill. EPA/DuPage Co. Health Dept.	N. 4642549 E. 417543	SLAMS - TSP
Bensenville (0380 001)	N. Fire Station Main & York Rd.	Ill. EPA/City	N. 4645234 E. 422222	SLAMS - TSP
Darien (1730 001)	Eisenhower Jr. H.S. 1410 75th St.	Ill. EPA/DuPage Co. Health Dept.	N. 4622598 E. 418259	SLAMS - TSP
Elmhurst (2300 001)	Police Station 118 Schiller	Ill. EPA/DuPage Co. Health Dept.	N. 4639049 E. 422123	NAMS - TSP
Glen Ellyn (2920 001)	Water Dept. Garage 494 Pennsylvania St.	Ill. EPA	N. 4636487 E. 411432	SPMS - TSP
Glen Ellyn (NEW) (2920 002)	Pump Sta. #3 308 Wilson	Ill. EPA/City	N. 4634216 E. 410598	NAMS - SO_2 SLAMS - O_3 SPMS - WS/WD
Naperville (5480 001)	Fire Station 175 Jackson St.	Ill. EPA/DuPage Co. Health Dept.	N. 4624938 E. 404376	SLAMS - TSP
West Chicago (8080 002)	Police Station 128 W. McConnell Ave.	Ill. EPA/DuPage Co. Health Dept.	N. 4637626 E. 400080	SLAMS - TSP
Wheaton (8220 002)	Court House 201 Reber St.	Ill. EPA/DuPage Co. Health Dept.	N. 4635049 E. 408358	SLAMS - TSP
KANE COUNTY				
Aurora (NEW) (0220 002)	Fire Station 770 N. Michels	Ill. EPA	N. 4625339 E. 392376	NAMS - TSP
Elgin (DISC) (2260 001)	Modern Dairy 1002 No. Liberty	Ill. EPA/City	N. 4656672 E. 395018	SPMS - TSP
Elgin (2260 004)	Civic Center 150 Dexter Ct.	Ill. EPA	N. 4654734 E. 393654	NAMS - TSP
Elgin (NEW) (2260 005)	Larsen Jr. H.S. 665 Dundee Rd.	Ill. EPA	N. 4655845 E. 394660	NAMS - SO_2, O_3
KANKAKEE COUNTY				
Bourbonnais (0560 001)	Olivet Nazarene College	Ill. EPA	N. 4556179 E. 426666	SLAMS - O_3
Bradley (0580 001)	East Elem. Sch. 610 E. Liberty St.	Ill. EPA	N. 4554462 E. 428259	SLAMS - TSP
LAKE COUNTY				
Deerfield (1760 001)	Woodland Park Elem. Sch. 1321 Wilmot Rd.	Ill. EPA	N. 4669574 E. 428580	NAMS - O_3

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER / OPERATOR	UTM COORD.	EQUIPMENT
Island Lake (DISC) (4000 001)	Island Lake Grade School Greenleaf Ave.	Ill. EPA/Lake Co. Health Dept.	N. 4680666 E. 401416	SPMS - TSP
Lake Bluff (4020 001)	East Elem. Sch. 121 E. Sheridan Place	Ill. EPA/Lake Co. Health Dept.	N. 4680333 E. 430166	SLAMS - TSP
Libertyville (4260 001)	Butterfield School 1441 Lake	Ill. EPA	N. 4682166 E. 419095	SLAMS - O_3 SPMS - WS/WD
Waukegan (8020 001)	City Hall 106 Utica	Ill. EPA/Lake Co. Health Dept.	N. 4690000 E. 431317	SLAMS - TSP
Waukegan (8020 002)	N. Fire Station Golf & Jackson	Ill. EPA/ L.C.H.D.	N. 4692840 E. 430760	NAMS - O_3 SLAMS - TSP, SO_2 SPMS - WS/WD
MC HENRY COUNTY				
Cary (1020 001)	Cary Grove H.S. 1st St. & Three Oaks Rd.	Ill. EPA/City H.S.	N. 4674876 E. 397580	NAMS - O_3 SLAMS - TSP
WILL COUNTY				
Braidwood (8320 007)	Sewage Plant	Ill. EPA	N. 4570111 E. 397802	SLAMS - TSP, O_3
Joliet (3760 002)	Pershing School Midland and Campbell	Will County Health Dept.	N. 4597641 E. 406864	NAMS - TSP
Joliet (3760 003)	Rivals Park 1425 No. Broadway	Will County Health Dept.	N. 4600253 E. 409086	SLAMS - TSP
Joliet (3760 005)	Joliet & Benton Sts.	Ill. EPA	N. 4598000 E. 409456	NAMS - SO_2 SPMS - WS/WD
Joliet (3760 006)	Joliet Junior College 1216 Houbolt Street	Will County Health Dept.	N. 4594900 E. 401500	SLAMS - TSP
Joliet (3760 007)	Will County Health Department Building 501 Ella Ave.	Will County Health Dept.	N. 4595172 E. 410814	SLAMS - TSP
Joliet (DISC) (3760 010)	Chamber of Commerce 71 No. Ottawa St.	Will County Health Dept.	N. 4596777 E. 409117	SLAMS - NO/NO_2, CO
Joliet (NEW) (3760 012)	Will County Court House Ottawa & Washington	Ill. EPA	N. 4597226 E. 409698	SLAMS - CO
Lockport (4380 002)	5th & Madison	Will County Health Dept.	N. 4604796 E. 412641	NAMS - TSP
Monee (8320 005)	432 E. Main St.	Will County Health Dept.	N. 4585320 E. 438438	SLAMS - TSP
Rockdale (NEW) (8320 009)	Volunteer Fire Dept.	Will County Health Dept.	N. 4595370 E. 406870	NAMS - TSP
Romeoville (6760 002)	Naperville Rd.	Will County Health Dept.	N. 4612240 E. 409680	NAMS - TSP
South Lockport (8320 008)	Park District Office Building 1911 So. Lawrence	Will County Health Dept.	N. 4604802 E. 412574	SLAMS - O_3

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER/ OPERATOR	UTM COORD.	EQUIPMENT
68 METROPOLITAN DUBUQUE INTERSTATE (IOWA - ILL. - WIS.)				
JO DAVIESS COUNTY				
Galena (2720 002)	Kraft Foods Plant South Commerce St.	Ill. EPA/ Jo Daviess Co. Health Dept.	N. 4698882 E. 711611	SPMS - TSP
69 METROPOLITAN QUAD CITIES INTERSTATE (ILL. - IOWA)				
ROCK ISLAND COUNTY				
Cordova (NEW/DISC) (6720 002)	Post Office	Ill. EPA	N. 4617580 E. 723265	SPMS - O_3
East Moline (2080 001)	City Hall 915 16th Ave.	Ill. EPA/Rock Island Co. Health Dept.	N. 4598938 E. 713543	SLAMS - TSP
East Moline (2080 002)	John Deere Parts Building 1400 13th St.	Ill. EPA/Rock Island Co. Health Dept.	N. 4599185 E. 714259	SLAMS - TSP
Milan (5100 001)	Elem. Sch. 125 W. 2nd Ave.	Ill. EPA/Rock Island Co. Health Dept.	N. 4591604 E. 703240	SLAMS - TSP
Moline (5120 002)	Moline H.S. 3600 23rd Ave.	Ill. EPA/Rock Island Co. Health Dept.	N. 4595691 E. 709925	SLAMS - TSP
Moline (5120 003)	Water Treatment Plant 30 18th St.	Ill. EPA	N. 4598339 E. 707500	NAMS - SO_2, O_3 SPMS - WS/WD
Moline (5120 004)	Post Office 6th Ave. & 17th St.	Ill. EPA	N. 4597876 E. 707561	SLAMS - CO
Rock Island (6700 001)	1528 3rd Ave.	Ill. EPA/Rock Island Co. Health Dept.	N. 4597950 E. 702179	NAMS - TSP
Rock Island (6700 003)	Rock Island H.S. 1400 25th Ave.	Ill. EPA/Rock Island Co. Health Dept.	N. 4595493 E. 702327	SLAMS - TSP
WHITESIDE COUNTY				
Sterling (DISC) (7400 001)	Fire Station 110 W. 5th St.	Ill. EPA	N. 4629583 E. 275283	SPMS - TSP
70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.)				
MADISON COUNTY				
Alton (0160 004)	City Hall 103 E. 3rd St.	Ill. EPA	N. 4308216 E. 744166	SLAMS - TSP

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER/ OPERATOR	UTM COORD.	EQUIPMENT
Alton (0160 006)	Horace Mann School 2708 Edwards St.	Ill. EPA	N. 4309512 E. 747407	SLAMS - SO_2, O_3 SPMS - WS/WD
Alton (0160 007)	School Board Administration Cen. 1854 E. Broadway	Ill. EPA	N. 4306543 E. 743395	SLAMS - CO
Collinsville (1500 002)	EPA Office 115A W. Main	Ill. EPA	N. 4284232 E. 239953	SLAMS - TSP
Edwardsville (4680 007)	RAPS Trailer Poag Road	Ill. EPA	N. 4297802 E. 757074	SLAMS - TSP, SO_2, NO/NO_2[d], O_3 SPMS - WS/WD
Granite City (2960 007)	Fire Station #1 23rd & Madison	Granite City APC	N. 4287734 E. 748481	NAMS - TSP
Granite City (2960 008)	Lake School 3201 E. 23rd	Granite City APC	N. 4287580 E. 750611	SPMS - TSP
Granite City (2960 009)	2001 E. 20th	Granite City APC	N. 4286654 E. 748777	SLAMS - TSP
Granite City (2960 010)	15th & Madison	Granite City APC	N. 4286500 E. 747277	SPMS - TSP
Granite City (2960 011)	Fire Station #2 Roosevelt & Rock Rd.	Granite City APC	N. 4288333 E. 746586	SLAMS - TSP
Granite City (2960 012)	Granite City APC Office 2301 Adams	Granite City APC	N. 4288240 E. 747895	SLAMS - SO_2, O_3
Granite City (2960 014)	Norfolk & Western	Ill. EPA/Granite City APC	N. 4286388 E. 749888	SPMS - TSP
Granite City (2960 015)	Frohardt School 2040 Johnson	Ill. EPA/Granite City	N. 4289753 E. 750611	SLAMS - TSP
Granite City (2960 016)	23rd & Nameoki	Ill. EPA/Granite City APC	N. 4287395 E. 750327	SLAMS - TSP
Granite City (2960 017)	2001 Edison	Granite City APC	N. 4287364 E. 747864	SLAMS - CO
Granite City (2960 019)	20th & Adams	Ill. EPA	N. 4287592 E. 747598	SPMS - TSP
Maryville (4680 008)	State Police Headquarters Rt. 159 South	Ill. EPA	N. 4284234 E. 240074	SLAMS - O_3 SPMS - WS/WD[n]
Wood River (8520 007)	Water Treatment Plant 54 No. Walcott	Ill. EPA	N. 4305185 E. 751135	NAMS - TSP, SO_2, O_3 SPMS - WS/WD[d]
MONROE COUNTY				
Columbia (DISC) (1520 001)	City Hall 208 So. Rapp	Ill. EPA	N. 4258345 E. 744376	SPMS - TSP
Waterloo (7960 001)	U.S. Dept. of Agriculture Building, Maeystown Road	Ill. EPA	N. 4246104 E. 748283	SLAMS - TSP, O_3
ST. CLAIR COUNTY				
Belleville (0320 001)	City Hall 101 So. Illinois	Ill. EPA	N. 4266734 E. 239790	SLAMS - TSP
Cahokia (0720 001)	Bi-State Parks Airport 1201 St. Clement	Ill. EPA	N. 4272666 E. 747364	SLAMS - TSP, SO_2 SPMS - WS/WD

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER/ OPERATOR	UTM COORD.	EQUIPMENT
East St. Louis (2120 010)	RAPS Trailer 13th & Tudor	Ill. EPA	N. 4277339 E. 747302	NAMS - TSP, SO_2 SLAMS - NO/NO_2, O_3, CO
71 NORTH CENTRAL ILLINOIS INTRASTATE				
BUREAU COUNTY				
DePue (0680 001)	Spayer Residence 1401 Marquette	Ill. EPA/Mr. Spayer	N. 4577444 E. 308425	SLAMS - TSP
LA SALLE COUNTY				
LaSalle (4080 001)	LaSalle-Peru H.S. 541 Chartres	Ill. EPA	N. 4577611 E. 323469	SLAMS - O_3 SPMS - SO_2^d
Oglesby (DISC) (5800 002)	Jasper Yard 230 Portland	Ill. EPA	N. 4573135 E. 328364	SPMS - TSP
Oglesby (DISC) (5800 003)	Fire Station 110 W. 2nd St.	Ill. EPA	N. 4573123 E. 327345	SPMS - TSP
Oglesby (DISC) (5800 004)	Kasap Lot Maple & Watson	Ill. EPA	N. 4573123 E. 328067	SPMS - TSP
Oglesby (DISC) (5800 005)	Rundle Lot 217 Portland	Ill. EPA	N. 4573166 E. 327697	SPMS - TSP, WS/WD
Ottawa (5880 002)	Ottawa Township H.S. 211 E. Main	Ill. EPA/Mr. Krabel	N. 4578475 E. 346296	SLAMS - TSP
73 ROCKFORD-JANESVILLE-BELOIT INTERSTATE (ILL. - WIS.)				
DE KALB COUNTY				
DeKalb (1780 003)	Clinton Rosette Middle Sch. 650 No. 1st St.	Ill. EPA	N. 4647320 E. 352074	SLAMS - TSP
WINNEBAGO COUNTY				
Rockford (6680 005)	Fire House 1528 18th Ave.	Ill. EPA	N. 4679185 E. 329024	NAMS - SO_2 SPMS - WS/WD
Rockford (8400 001)	Maple Elem. Sch. 1405 Maple Ave.	Ill. EPA	N. 4688800 E. 332200	NAMS - O_3
Rockford (6680 009)	Walker Grade School 1500 Post St.	Ill. EPA	N. 4683574 E. 328746	NAMS - O_3
Rockford (NEW) (6680 010)	Fire Dept. Admin. Bld. 204 S. 1st St.	Ill. EPA/Winn. Co. Hlth. Dept.	N. 4681314 E. 327641	NAMS - TSP
Rockford (NEW) (6680 011)	City Hall 425 E. State	Ill. EPA	N. 4678300 E. 327800	SLAMS - CO
Rockford (NEW) (6680 012)	Beyer Elem. Sch. 333 15th St.	Ill. EPA/Winn. Co. Hlth. Dept.	N. 4679456 E. 327259	NAMS - TSP

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER/ OPERATOR	UTM COORD.	EQUIPMENT
South Beloit (7180 001)	Wheeler School Wheeler Ave. at Washington	Ill. EPA	N. 4705969 E. 332969	SPMS - TSP
74 SOUTHEAST ILLINOIS INTRASTATE				
CRAWFORD COUNTY				
Robinson (DISC) (6620 001)	Lincoln Trail College R.R. #1	Ill. EPA	N. 4318938 E. 439598	SPMS - TSP, O_3
EFFINGHAM COUNTY				
Effingham (DISC) (2200 001)	USDA Building 1015 So. Willow	Ill. EPA/Mr. Rexroat	N. 4330583 E. 366866	SPMS - TSP
Effingham (NEW) (2220 001)	Central Jr. H.S. Route 45 South	Ill. EPA	N. 4326587 E. 366063	SLAMS - TSP, O_3 SPMS - WS/WD
JACKSON COUNTY				
Carbondale (DISC) (0840 002)	306 W. Main St.	Ill. EPA/SIU	N. 4177660 E. 304518	SLAMS - TSP
Carbondale (NEW) (0840 003)	Community H.S. 300 N. Springer	Ill. EPA	N. 4177774 E. 303849	SLAMS - TSP
JEFFERSON COUNTY				
Mt. Vernon (5420 002)	State Office Building 601 No. 18th St.	Ill. EPA	N. 4243166 E. 332672	SLAMS - TSP
WILLIAMSON COUNTY				
Marion (4720 001)	State Office Building 2209 W. Main St.	Ill. EPA	N. 4177240 E. 327833	SLAMS - SO_2, O_3 SPMS - WS/WD
75 WEST CENTRAL ILLINOIS INTRASTATE				
ADAMS COUNTY				
Quincy (DISC) (6440 002)	Central Fire Station 9th & Vermont	Ill. EPA/City	N. 4421487 E. 636512	SPMS - TSP
Quincy (6440 005)	Highland Riverside Sch. Highland Lane	Ill. EPA	N. 4425067 E. 637345	SLAMS - O_3
Quincy (NEW) (6440 006)	St. Boniface Sch. 732 Hampshire	Ill. EPA	N. 4421358 E. 636388	SLAMS - TSP, SO_2 SPMS - WS/WD
MACON COUNTY				
Decatur (1740 002)	Grant School 2300 Geddes	Ill. EPA	N. 4413703 E. 335413	SPMS - TSP
Decatur (1740 004)	Harris School 600 E. Garfield	Ill. EPA	N. 4414179 E. 333345	NAMS - TSP

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER / OPERATOR	UTM COORD.	EQUIPMENT
Decatur (1740 006)	Fire Station #4 2760 No. 22nd St.	Ill. EPA	N. 4415382 E. 335364	SLAMS - SO_2, O_3 SPMS - WS/WD
Decatur (1740 009)	750 E. Lake Shore Dr.	Ill. EPA	N. 4410043 E. 333574	SLAMS - TSP
Decatur (1740 012)	Decatur Housing Authority 1808 E. Locust	Ill. EPA	N. 4413413 E. 334783	NAMS - TSP
MACOUPIN COUNTY				
Nilwood (DISC) (4640 001)	Post Office	Ill. EPA	N. 4365085 E. 258046	SLAMS - O_3
Nilwood (NEW) (4640 002)	Trailer	Ill. EPA	N. 4364799 E. 257919	SLAMS - O_3
MENARD COUNTY				
Petersburg (6170 001)	7th & Jackson	Ill. EPA	N. 4432518 E. 256722	SLAMS TSP
SANGAMON COUNTY				
Springfield (7280 005)	IEPA Bldg. 2200 Churchill	Ill. EPA	N. 4410024 E. 269191	SLAMS - TSP
Springfield (7280 006)	Sewage Treatment Plant I55 & I72 at Old 36	Ill. EPA	N. 4408753 E. 277987	NAMS - SO_2 SPMS - WS/WD
Springfield (7280 008)	Post Office 6th & Monroe	Ill. EPA	N. 4408623 E. 273327	SLAMS - CO SPMS - NO/NO_2[d]
Springfield (7280 009)	Post Office 2105 Cook	Ill. EPA	N. 4408049 E. 275320	NAMS - TSP
Springfield (7280 010)	Public Health Warehouse 2875 Dirksen Ave.	Ill. EPA	N. 4413487 E. 277074	SLAMS - O_3

EQUIPMENT CODE SYMBOLS

TSP - Total Suspended Particulate
SO_2 - Sulfur Dioxide
NO - Nitric Oxide
NO_2 - Nitrogen Dioxide
CO - Carbon Monoxide
O_3 - Ozone
WS/WD - Wind Speed and Direction
RHC - Reactive Hydrocarbons

n - instrument installed during 1981
d - instrument removed during 1981
NEW - site started in 1981
DISC - site discontinued in 1981

UTM COORD.

N. - Northing Coordinates
E. - Easint Coordinates

3.2b DIRECTORY OF SPECIAL PURPOSE AND INDUSTRIAL MONITORING SITES OPERATED DURING 1981

Following is a directory showing the privately operated monitoring sites

STATION	ADDRESS	OWNER/ OPERATOR	UTM COORD.	EQUIPMENT
66 EAST CENTRAL ILLINOIS INTRASTATE				
VERMILION COUNTY				
GM Network: (DISC) Tilton (7640 001)	McVey St.	General Motors	N. 4442197 E. 445104	TSP
Tilton (7640 002)	U.S. Steel W. First St.	General Motors	N. 4442043 E. 442265	TSP
Tilton (7640 003)	7th & "J" Sts.	General Motors	N. 4439802 E. 443839	TSP
Tilton (7780 001)	North "H" St.	General Motors	N. 4440407 E. 444530	TSP
71 NORTH CENTRAL ILLINOIS INTRASTATE				
BUREAU COUNTY				
DePue (0680 005)	S. W. Corner of Plant	Mobil Chemical	N. 4577240 E. 306660	SO_2
DePue (0680 006)	White City Park	Mobil Chemical	N. 4577518 E. 308203	SO_2
DePue (0680 007)	Met. Tower	Mobil Chemical	N. 4577271 E. 307055	WS/WD
72 PADUCAH-CAIRO INTERSTATE (KY, - ILL.)				
MASSAC COUNTY				
TVA Network: Station 10 (DISC) (4900 001)	Massac County	TVA	N. 4116530 E. 344760	TSP, SO_2
Station 11 (5060 006)	Metropolis	TVA	N. 4113250 E. 345400	TSP, SO_2
Station 16 (4900 002)	Massac County	TVA	N. 4118250 E. 338720	SO_2
Station 17 (4900 003)	Massac County	TVA	N. 4119940 E. 348840	SO_2

1981
SITE DIRECTORY

STATION	ADDRESS	OWNER / OPERATOR	UTM COORD.	EQUIPMENT
Station 18 (4900 004)	Massac County	TVA	N. 4116370 E. 348700	SO_2
Station 19 (4900 005)	Massac County	TVA	N. 4120180 E. 342600	SO_2
Station 23 (NEW) (5060 008)	Massac County	TVA	N. 4116560 E. 344830	SO_2
75 WEST CENTRAL ILLINOIS INTRASTATE				
SANGAMON COUNTY				
Springfield CWLP Network: Lincoln Green (7280 002)	Lincoln Green Golf Course	CWLP	N. 4402654 E. 277450	TSP^d, SO_2
Tansey (6980 017)	Tansey Avenue	CWLP	N. 4406796 E. 277833	TSP^d, SO_2
Mavis (6980 016)	Mavis Farm Oak Hills Rd.	CWLP	N. 4401691 E. 281049	SO_2^d
Groth (7280 001)	CWLP Maintenance Building Groth Street	CWLP	N. 4406734 E. 276104	SO_2^d
Stevenson Tower (7280 003)	I55 & Stevenson Dr.	CWLP	N. 4403432 E. 276314	WS/WD, Temperature

3.3 AMBIENT AIR SAMPLING METHODOLOGIES

The Illinois Ambient Air Monitoring Network is essentially two networks -- one noncontinuous or intermittent, the other continuous. Noncontinuous samplers are generally used to measure average air quality over time periods of twenty-four hours and have restricted utility for measuring short-term variations in air quality. Continuous samplers on the other hand perform constant surveillance and easily accommodate averaging periods of one hour. Continuous instruments are, therefore, necessary in areas of potential rapidly changing air quality and for measurements involving short-term (24 hours or less) ambient air standards. Continuous instruments are also necessary in situations requiring real time data for the control of air pollution episodes.

The noncontinuous network is comprised of total suspended particulate (TSP) and gas impinger samplers. These instruments are operated on a USEPA coordinated sampling schedule involving a 24-hour period every six days. Additionally, TSP samples are analyzed to provide data relative to ambient levels of selected metals and other chemical compounds.

Continuous measurements are made for sulfur dioxide, oxides of nitrogen, carbon monoxide, ozone and reactive hydrocarbons. As of February 18, 1976, new instrumentation used for the measurement of ambient concentrations of criteria air pollutants was required to be designated as a reference or equivalent method by the U.S. Environmental Protection Agency. Instrumentation existing prior to that date could continue to be used until February 18, 1980 except nitrogen dioxide which could be used until January 3, 1980 under the provisions of this regulation. Table 5 of this section contains a listing of approved continuous instruments for sulfur dioxide, ozone, carbon monoxide and nitrogen dioxide. At present, no reference method for monitoring reactive hydrocarbons has been designated. It is this continuous instrumentation coupled with a statewide telemetry system which provides the foundation of the Illinois Air Monitoring Network. Data generated in this manner is rapidly analyzed and tabulated through contemporary data processing procedures providing a near real time picture of the air environment throughout the state. A brief description of the operating principles of the instrumentation employed within the Illinois Air Monitoring Network follows.

NONCONTINUOUS INSTRUMENTATION

TOTAL SUSPENDED PARTICULATE (TSP) SAMPLERS

Eight by ten inch glass fiber filters are conditioned to reach a stabilized moisture content after which their weight is accurately determined. The filters are then placed on a hi-volume sampler with air drawn through them at the rate of 40 to 60 cubic feet per minute for 24

hours. These instruments ordinarily operate on a midnight to midnight schedule. The exposed glass filters are then returned to the conditioning environment and allowed to re-equilibrate with respect to moisture content. When this equilibrium has been reached, the filters are reweighed. The differential weight is divided by the total air flow to yield a concentration in particulate weight per volume of air sampled (micrograms of TSP per cubic meter of air). In general, particles between 0.1 and 100 microns in diameter can be collected. (40 CFR, Part 50, Appendix B)

Metallic Content of Particulate Samples

Subsequent to the gravametric analysis described above, representative portions of the high-volume samples are subjected to a chemical digestion followed by analysis via atomic absorption to determine the concentration of selected metals in the particular matter. These analyses are routinely performed on monthly composite samples from each site (portions of all filters exposed during a given month at a specific site are combined and analyzed). The concentrations of copper, cadmium, chromium, lead, nickel, arsenic, manganese, iron and beryllium are routinely determined and each is reported as micrograms of the metal per cubic meter of air.

Sulfate and Nitrate Concentrations of Particulate Matter

The sulfate and nitrate content of the particulate matter is also measured following a selection and digestion of representative portions of the samples. Nitrate is determined employing the Cadmium Reduction methodology while sulfate analysis is accomplished using the Methylthymol Blue method. As with metallic components, these concentrations are also reported as micrograms per cubic meter.

IMPINGER (BUBBLER) SAMPLERS

These intermittent samplers are used to measure sulfur dioxide and nitrogen dioxide levels in ambient air. Ambient air is drawn through a solution where the desired pollutant is selectively absorbed with high efficiency. Air flows through the absorbing solutions at a rate of 0.2 liters per minute for a sampling period of 24 hours. After a sampler is collected, the solutions are returned to the laboratory for analysis. Due to thermal instability and time decomposition of the collected samples, the impinger (bubbler) samples have been discontinued by the Illinois Environmental Protection Agency as of January 1, 1978, although Cook County and City of Chicago agencies operated gas bubblers during 1980.

Sulfur Dioxide Analysis

The absorbing solution for sulfur dioxide is a tetrachloromercurate solution. The absorbed sample is analyzed for sulfur dioxide concentration using the paraosaniline reference procedure outlined in the Federal Register. (40 CFR, Part 50, Appendix A) The concentration in solution, divided by the air flow, times the gas factor for sulfur dioxde gives the concentraton of sulfur dioxide in parts per million for that sampling period.

Nitrogen Dioxide Analysis

The absorbing solution for nitrogen dioxide sampling is a sodium hydroxide-sodium arsenite solution and the absorbed sample is analyzed using the manual equivalent procedure specified in December, 1977. (40 CFR, Part 50, Appendix D) The solution is analyzed for concentration of nitrogen dioxide by a colorimetric method and the concentration in solution, divided by the air flow, times the gas factor gives the ambient concentration of nitrogen dioxide in parts per million.

CONTINUOUS INSTRUMENTATION

COEFFICIENT OF HAZE

Coefficient of haze (COH) samplers draw ambient air through a paper filter tape filter allowing for the deposition of entrained particulate matter. A photocell measures the decrease in the amount of light transmitted through the tape as a result of this depostion. This measurement can be related to the concentration of particulates per unit volume of air and is termed Coefficient of Haze (COH). Comparison between results obtained from high-volume samplers and COH samplers has shown widely varying correlations. This is apparently because the COH sampler is primarily measuring the optical properties associated with the particulates collected on the tapes while the high-volume sampler produces results which are determined by weight. In general, correlations between the two methods indicate that one COH is approximately equivalent to 125 micrograms per cubic meter measured via the high-volume method. The COH samplers offer the advantage of providing a continuous sampling methodology as the tape automatically advances from time to time to begin a new sampling and recording cycle. As a result, a few of the COH samplers are maintained within the Illinois Air Monitoring Network to provide information in the event of air stagnations and particulate episodes. However, due to the influences produced by the color and size (optical properties) of the particulates all other COH tape samplers were discontinued by the Agency as of January 1, 1978.

BETA RADIATION PARTICULATE MONITORS

Beta radiation instruments perform in a very similar fashion to the COH tape samplers during the collection phase of operation. Ambient air is drawn through a collection medium where the particulate matter is deposited. During the measurement phase, however, a decrease in beta radiation is measured which is a direct function of the mass of the particulate matter rather than the optical properties (the major disadvantage of the COH monitor). A limited number of these monitors are under evaluation by the Agency.

SULFUR DIOXIDE

A. Colorimetric Monitors

Ambient air is drawn through an absorbing column where it is continuously mixed with a solution of tetrachloromercurate absorbing the sulfur dioxide. A portion of this solution is mixed with formaldehyde, sulfamic acid, and pararosaniline dye and allowed to flow through a time delay coil where mixing and chemical reaction between the sulfur dioxide and the analytical reagents take place. The resulting dye complex is spectrophotometrically analyzed using a flow cell colorimeter at a specific wave length. The change in percent transmission of the solution is related to concentration of sulfur dioxide in the ambient air. This ambient analysis procedures is identical to the reference procedure EQS-0775-001 (analysis of manually collected samples, i.e. impingers) with the exception that an absorbing coil is used to obtain a continuous sample.

B. Coulometric Monitor

Ambient air is drawn through an acid solution of bromine and bromide ions. The ensuing chemical reaction between sulfur dioxide and bromine results in a shift of electrical equilibrium in the solution and requires an electrical current to produce sufficient bromine necessary to return to the original equilibrium. The electrical current required to reestablish this balance is proportional to the sulfur dioxide concentration of the ambient air.

C. Pulsed Fluorescent Monitor

Ambient air is drawn into a chamber where it is pulse irradiated with ultra-violet light of a specific wavelength. The sulfur dioxide molecules present absorb photons of energy from this light. When these excited molecules revert back to their original energy state, they release energy in the form of light and the intensity of the emitted light is measured and translated into a sulfur dioxide concentration.

D. Flame Photometric Detector Monitor

Ambient air is drawn into a chamber where it is burned in a hydrogen hyperventilated air diffusion flame. The luminescence resulting from the reaction of the ambient sulfur molecules with the flame is absorbed by a photomultiplier detector. The resulting output from this detector is related to the sulfur dioxide concentration in the ambient air.

E. Second Derivative Spectrophotometric Monitor

Ambient air is drawn through a sample chamber into which ultra-violet light at a particular wavelength is directed. The second derivative spectrum of this beam is monitored continuously at a particular wavelength. The intensity of this spectrum is related to concentration of sulfur dioxide in the ambient air.

NITROGEN DIOXIDE (Chemiluminescent Monitor)

A. Single Channel, Single Detector

Ambient air is drawn into the unit by two paths. In one path, the sample is exposed to ozone directly and the light produced by the reaction between nitric oxide (NO) and ozone is measured and calculated as nitric oxide concentration in ambient air. In the other path, the sample passes through a converter changing quanititatively the oxides of nitrogen (NO_x) in the sampler into nitric oxide (NO). The sample is then exposed to ozone and the light produced by the chemiluminescence measured and calculated as total oxides of nitrogen concentration in ambient air. These measurements are made alternately and then either subtracted, electronically or manually to give the concentration of nitrogen dioxide in the ambient air.

B. Dual Chamber, Single Detector

The chemiluminescence reaction and detection method is the same as in "A" above, except that samples of ambient air are made simultaneously for both the nitric oxide and total oxides of nitrogen measurements rather than alternating back and forth. The detector observes the reaction chambers alternately and the results are calculated as before to give the concentration of nitrogen dioxide in the ambient air.

C. Dual Chamber, Dual Detector

The chemiluminescence reaction is the same as in "A" and "B" above, except that each of the chambers operates with its own independent detector; one measuring nitric oxide and the other measuring total oxides of nitrogen. Again, the results are calculated as before to give the concentration of nitrogen dioxide in the ambient air.

OZONE

A. Ultra-Violet Absorption Monitor

Ambient air is drawn through a sample chamber into which a beam of ultra-violet light of a particular wavelength is passed. This beam is monitored continuously for any decrease in intensity which is due to the absorption of incident light by ozone molecules present in the air. The decrease in light transmittance is translated into ozone concentration in the ambient air.

B. Chemiluminescent Monitor

Ambient air is drawn into a reaction chamber where the sample is mixed with ethylene gas. Ozone reacts quantitatively with the ethylene to produce light which is detected by a photodetector and which is related to the concentration of ozone in the ambient air by its intensity.

CARBON MONOXIDE

A. Non-Dispersive Infrared (NDIR) Monitor

Ambient air is drawn through a sample chamber into which a beam of infrared light at a particular wavelength is passed. This beam is continuously monitored and any decrease in intensity at the specific wavelength is due to the absorption of light by the carbon monoxide molecules present. This decrease is directly related to the concentration of carbon monoxide in the ambient air.

B. Gas Chromatography-Flame Ionization Monitor

Ambient air is drawn through a gas chromatographic column where the carbon monoxide component is separated from the other components. The carbon monoxide is then reduced to methane and burned in a hydrogen flame. The change in the electro-potential of the collector due to the increase ionization produced by this burning is translated into a concentration of carbon monoxide in ambient air.

REACTIVE HYDROCARBON (TOTAL HYDROCARBON LESS METHANE) MONITORS

A. Gas Chromatography-Flame Ionization Detection

Ambient air is drawn through a chromatographic column where the hydrocarbon component is then divided; one portion is totally converted to methane and introduced into a flame, the other portion is pretreated so that only the ambient methane component of the hydrocarbon sample is separated and introduced into the flame. In the flame, the burning of the methane results in a change in the electro-potential of the collectors due to the increased ionization

which is correlated to the concentration of methane and total hydrocarbon as methane. Using either an electronic subtraction circuit or manual subtraction, the value for the concentration of reactive hydrocarbons in ambient air is determined.

TABLE 5
USEPA DESIGNATED REFERENCE AND EQUIVALENT METHODS
(Effective December 31, 1981)
SULFUR DIOXIDE

Designation Number	Identification	Source	Federal Register Notice Vol.	Federal Register Notice Page
EQS-0775-001	Paraosaniline Method -- Technicon I (Auto-Analysis of Manually Collected Samples)	Technicon	40	34024
EQS-0775-002	Paraosaniline Method -- Technicon II (Auto-Analysis of Manually Collected Samples)	Technicon	40	34024
EQSA-1275-005	SM 1000 (Second Derivative Spectrophotometer)	Lear Siegler	41	3893
EQSA-1275-006	SA 185-2A (Flame Photometric)	Meloy	41	3893
EQSA-0276-009	43 (Pulsed Fluorescence)	Thermo Electron	41	8531
EQSA-0676-010	PW 9755 (Coulometric)	Philips	41	26252
EQSA-0876-011	PW 9700 (Coulometric)	Philips	41	34105
EQSA-0876-013	8450 (Flame Photometric)	Monitor Labs	41	36245
EQSA-0877-024	500 (Coulometric)	Asarco	42	44264
EQSA-0678-029	953 (Chopped Fluorescence)	Beckman	43	35995
EQSA-1078-030	8303 (Flame Photometric)	Bendix	43	50733

TABLE 5 (CONT.)
SULFUR DIOXIDE

Designation Number	Identification	Source	Federal Register Notice Vol.	Page
EQSA-1078-032	SA 285 E (Flame Photometric)	Meloy	43	50734
EQSA-0779-039	8850 (Fluorescence)	Monitor Labs	44	44616
EQSA-0580-046	SA 700 (Fluorescence)	Meloy	45	31488
EQSA-1280-049	AM 2020 (Second Derivative Spectrophotometer)	Lear Siegles	45	79574

NITROGEN OXIDES

Designation Number	Identification	Source	Federal Register Notice Vol.	Page
RRFNA-0677-021	8440E (Chemiluminescence)	Monitor Labs	42	37434
RRFNA-0777-022	8101C (Chemiluminescence)	Bendix	42	37435
RRFNA-0977-025	1600 (Chemiluminescence)	Columbia Scientific Instruments	42	46574
EQN-1277-026 EQN-1277-027 EQN-1277-028	Sodium Arsenite Method (3) -- (Auto-Analysis of Manually Collected Samples)	Technicon	42	62972
RFNA-1078-031	NA 530 R (Chemiluminescence)	Meloy	43	50733
RFNA-0179-034	952-A (Chemiluminescence)	Beckman	44	7805
RFNA-0179-035	14 B/E (Chemiluminescence)	Thermo Electron	44	7805
RFNA-0279-037	14 D/E (Chemiluminescence)	Thermo Electron	44	10429

TABLE 5 (CONT.)
NITROGEN OXIDES

Designation Number	Identification	Source	Federal Register Notice Vol.	Page
RFNA-0479-038	8101-B (Chemiluminescence)	Bendix	44	26792
RFNA-0879-040	9762 (Chemiluminescence)	Philips	44	51683
RFNA-0280-042	8840 (Chemiluminescence)	Monitor Labs	45	9100

CARBON MONOXIDE

Designation Number	Identification	Source	Federal Register Notice Vol.	Page
RFCA-0276-008	8501-5CA (NDIR)	Bendix	41	7450
RFCA-0876-012	866 (NDIR)	Beckman	41	36245
RFCA-0177-018	202S (NDIR)	Mine Safety	42	5748
RFCA-1278-033	AQM-10 AQM-11 AQM-12 (NDIR)	Horiba	43	58429
RFCA-0979-041	8310 (NDIR)	Monitor Labs	44	54545
RFCA-1180-048	APMA 300E/300SE (NDIR)	Horiba	45	72774
RFCA-1280-050	MASS Model 1	Commonwealth of Mass.	45	81650
RFCA-0381-051	3003 (Gas Filter Correlation)	Dasibi	46	20773
RFCA-0981-054	48 (Gas Filter Correlation)	Thermo Electron	46	47002

TABLE 5 (CONT.)
OZONE

Designation Number	Identification	Source	Federal Register Notic Vol.	Page
RFOA-1075-003	QA 325-2R (Chemiluminescence)	Meloy	40	54856
RFOA-1075-004	QA 350-2R (Chemiluminescence)	Meloy	40	54856
RFOA-0176-007	8002 (Chemiluminescence)	Bendix	41	5145
RFOA-1076-014 RFOA-1076-015 RFOA-1076-016	1100-1 1100-2 1100-3 (Chemiluminescence)	McMillan	41	466747
RFOA-1176-017	8410E (Chemiluminescence)	Monitor Labs	41	53684
EQOA-0577-019	1003-AH (UV Absorption)	Dasibi	42	28571
RFOA-0577-020	950A (Chemiluminescence)	Beckman	42	28571
EQOA-0777-023	PW9771 (Chemiluminescence)	Philips	42	38931
RFOA-0279-036	CSI 2000 (Chemiluminescence)	Columbia Scientific	44	10429
EQOA-0880-047	TE 49 U.V. (U.V. Photometric)	Thermo Electron	45	57168
EQOA-0881-053	8810 (U.V. Photometric)	Monitor Labs	46	52224

3.4 QUALITY ASSURANCE SUMMARY

The quality assurance program for the Illinois Ambient Air Monitoring Section distributes the responsibility for producing quality data to the various Unit Managers and Supervisors within the Section. The program requires documented procedures of operation and quality control in accordance with prescribed Federal and State requirements. Each Unit must adequately develop and consistently follow the appropriate procedures. The Section Quality Assurance Office is authorized to independently audit and document the effectiveness of the procedures within each Unit, and to report the results to the Section Manager. The Quality Assurance Office utilizes system and performance audits in assessing each Unit to ensure a thorough inspection. Upon review of the Quality Assurance report, the Section Manager may initiate changes to areas of the quality assurance program which are deemed as unsatisfactory.

Municipal, county, industrial, or other air monitoring agencies impacting the Illinois State Implementation Plan are also required through Federal and State regulations to maintain quality assurance programs. As before, the Quality Assurance Office of the Ambient Air Monitoring Section is responsible for auditing and documenting the effectiveness of these programs. Each Quality Assurance report is reviewed by the Section Manager and then sent to the Manager of the IEPA Division of Air Pollution Control to initiate changes to deficient areas.

Interested parties may obtain specific Quality Assurance reports or information on the quality assurance program for the Illinois Ambient Air Monitoring Section by contacting:

Ambient Air Monitoring Section
Illinois Environmental Protection Agency
Division of Air Pollution Control
2200 Churchill Road
Springfield, Illinois 62706

4.0 STATEWIDE SUMMARY OF AIR QUALITY DATA - 1981

4.1 AIR QUALITY DATA INTERPRETATION

Ambient air measurements are used as the basis for understanding and evaluating air quality. To ensure optimum use of these measurements, the Agency periodically reviews the deployment of sensors in its air monitoring network. Nevertheless, no finite number of samplers can completely document air quality. Ambient air pollution measurements should be used in conjunction with meteorological and emission data and mathematical modeling to yield more comprehensive understanding of a given region.

In order to provide a uniform procedure for determining whether a sufficient amount of air quality data has been collected by a sensor in a given time period (year, quarter, month, day, etc.) to be representative of that time period, a minimum statistical selection criteria was developed.

In order to calculate an annual average for noncontinuous sites, a minimum of 67% of the data that was attempted to be collected must be available, i.e., 40 samples for a once every six day schedule (total possible of 60 samples). Additionally in order to have proper quarterly balance, each site on an every sixth day schedule must have at least 8 samples per quarter. This provides for a 20% balance in each quarter if the minimum required annual sampling is achieved.

For the composite results: heavy metals, sulfates and nitrates, where the individual samples are combined into monthly composites, a total of nine valid monthly composites are needed for a valid annual average. For the lead results where a quarterly average is needed for comparison to the standard, at least two valid monthly composites are needed in each quarter for a valid quarterly average.

To determine an annual average for continuous data 75% of the total possible yearly observations are necessary, i.e., a minimum of 6570 hours were needed in 1981. In order to provide a balance between the respective quarters, each quarter must have at least 1300 hours which is 20% of the 75% minimum annual requirement.

To calculate quarterly averages at sites which do not meet the annual criteria, 75% of the total possible observations in a quarter are needed, i.e., a minimum of 1647 hours.

Monthly averages also require 75% of the total possible observations in a month, i.e., 540 hours as a minimum.

Additionally, for short-term running averages (24 hour, 8 hour, 3 hour) 75% of the data during the particular time period is needed, i.e., 18 hours for a 24-hour average, 6 hours for an 8-hour average and 3 hours for a 3-hour average.

Data listed as not meeting the minimum statistical selection criteria in this report were so noted after evaluation using the criteria above.

The criteria for calculating a valid annual average requires 75% of the number of hours in the year (6570 hours for 1981). Although short term averages (3, 8, 24 hours) have been computed for certain sites not meeting the annual criteria, these averages may not be representative of an entire year's air quality. In certain circumstances where even the 75% criteria is met, the number and/or magnitude of short term averages may not be directly comparable from one year to the next because of seasonal distributional differences.

For summary purposes, the data is expressed in the number of figures to which the raw data is validated. Extra figures may be carried in the averaging technique, but the result is rounded to the appropriate number of figures. For example, the values 9, 9, 10 are averaged to give 9; whereas the values 9.0, 9.0, 10.0 are averaged to 9.3. The raw data itself should not be expressed to more significant figures than the sensitivity of the monitoring methodology allows.

In the past, the Illinois EPA has compared data to the air quality standards based on the number of significant figures contained in the data itself, i.e., an 8-hour CO average of 9.1 ppm was taken as an exceedance of the 9 ppm standard. However, with the promulgation of the 0.12 ppm ozone standard, the USEPA has indicated that an ozone hourly value must be 0.125 ppm or higher to exceed the standard. Thus, in order to be consistent for all pollutants, comparison to the standards will be made with the data rounded to the number of significant figures given in the standard. Peak averages, though, will be expressed to the number of significant figures appropriate to that monitoring methodology.

Five the seven National Ambient Air Quality Standards (NAAQS) -- suspended particulate (TSP), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3), and non-methane hydrocarbons (N-MHC) -- have short-term standards for ambient air concentrations (24 hours or less) not to be exceeded more than once per year (ozone: expected number of exceedences to average not more than one in a three year period). The standards are promulgated in this manner in order to protect the public from excessive levels in pollution both in terms of acute and chronic health effects.

Air pollution itself is a highly variable phenomenon. Some of the factors effecting pollution concentrations are (a) meteorological: atmospheric stability, wind speed and direction, precipitation, solar radiation, temperature, etc.; (b) geographical: urban or rural, valleys or plains and (c) economic: concentrations of industries, boom or recession, weekday or weekend. These variations often can be discerned as a pattern on a diurnal, seasonal or longer range basis.

Interpretation of data must necessarily consider the question of how well the air quality data represents the actual air quality. Certain statistical procedures are useful in describing and interpreting air quality data. Some of the formulas used in the compilation of this report, along with examples of their use, are given in Appendix A.

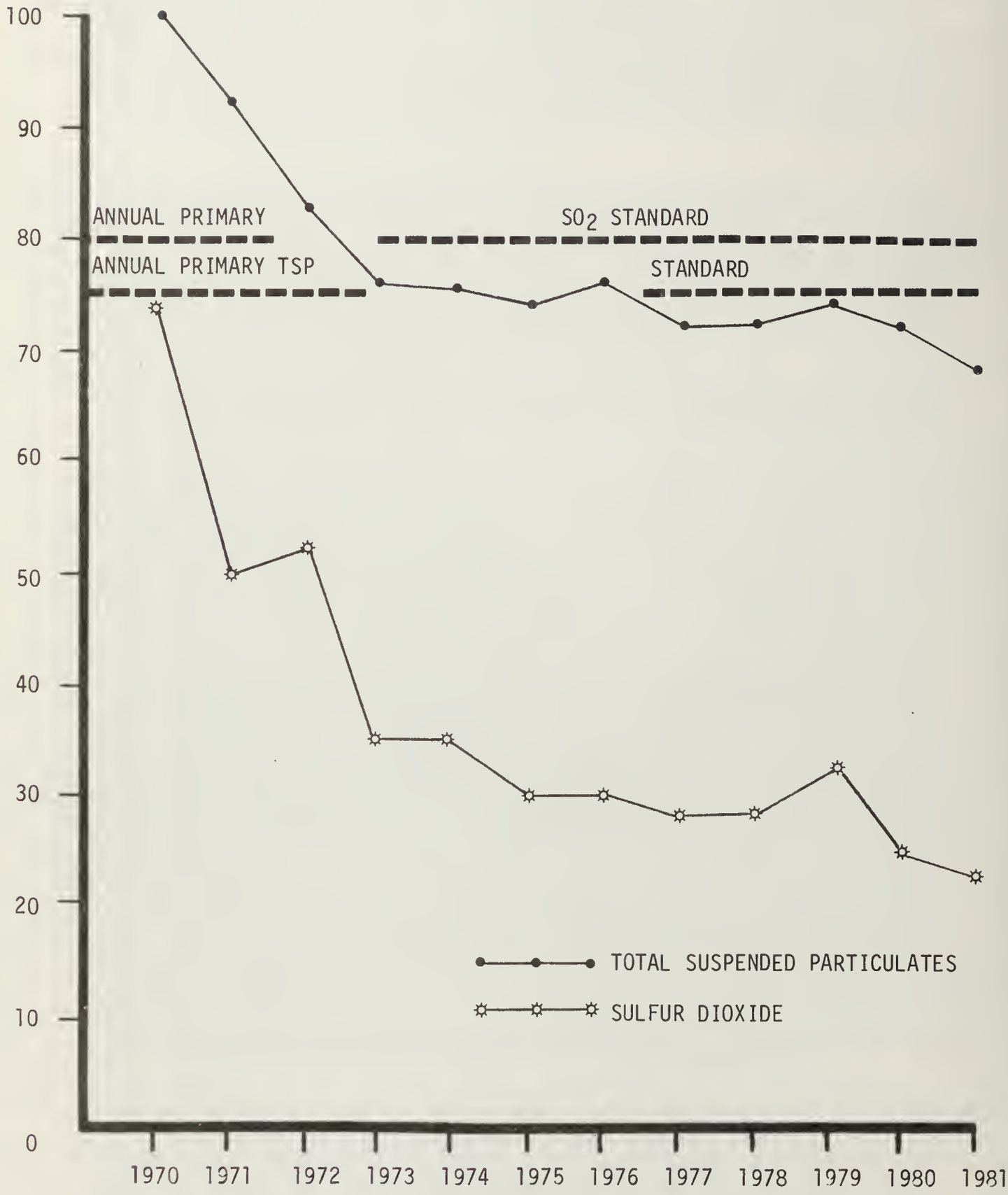
It is generally assumed that, if an instrument monitors continually, at the end of the year the air quality at that site is completely specified to within the accuracy of the instrument. However, monitors for suspended particulates and the SO_2/NO_2 bubblers operate on a noncontinuous basis -- generally once every six days and in some cases every three days. In these situations, there is a question regarding how well the non-continuous data describes the air quality on days when monitoring is not conducted. Following Hunt (1972), confidence intervals can be determined for the noncontinuous data with the resultant true annual mean falling within a determined range at this specified confidence level.

Larsen (1971) indicates that the distribution of pollutant concentrations measured throughout the year is, in many instances, log-normal, i.e., the logarithm of the concentrations follows the well known normal statistical distribution. Thus normal statistics can be applied to these cases. The pertinent parameters used in describing a log-normal distribution are the geometric mean, which specifies the central tendency (50th percentile point) of the values and the geometric standard deviation which specifies the spread of the distribution. A large geometric standard deviation indicates a large spread in the data. As an example, if every value for the year was identical, there would be no spread and the geometric standard deviation would be 1.0.

Once data has been compiled over a period of years, it is possible to determine trends mathematically. The Daniel's Test using the Spearman Rank Correlation Coefficient as described and recommended in Guidelines for the Evaluation of Air Quality Trends (OAQPS No. 1.2-014) can be used for these determinations. (See Appendix A for an example calculation using this method.) A minimum of four years of valid data are required to use this method. A significant result either upward or downward indicates only the consistency of the direction of the change and not the magnitude of the change. In order to estimate the magnitude of the trend, it is necessary to apply a linear regression (least-squares fit) to the data. The result is the average rate of change over the time period of interest. Care should be exercised in the use of calculated trends. The factors contributing to the existence or absence of a trend at one site could be totally different than those contributing at another site. In fact, over a period of years, a site can show no trend by the statistical technique mentioned above, and yet have an overall decrease in concentration levels. This would indicate that the direction of the yearly changes have not been consistent. Thus each site should be completely analyzed before final conclusions are drawn.

FIGURE 1

STATEWIDE POLLUTION TRENDS*



*Arithmetic average of annual means, geometric for TSP and arithmetic for SO_2, of all sites which have valid annual averages in each year.

4.2 TOTAL SUSPENDED PARTICULATES SUMMARIES

Figure 1 depicts the statewide trend for total suspended particulates (TSP) from 1970 through 1981. The statewide average in each year is determined by taking the arithmetic average of all the valid annual geometric means in that year. The overall trend is downward with the greatest decrease occurring from 1970 - 1973. Since 1973 the decrease has been more gradual with upward interruptions due to adverse meteorology in 1976 and 1979. In 1981 the statewide avearage was 68 ug/m^3 compared with 72 ug/m^3 in 1980 and 72 ug/m^3 in 1979. Part of the decrease in 1981 may be due to abnormally high precipitation in Illinois during 1981 which would tend to minimize TSP concentrations.

Table 6 is the ranking (highest to lowest) of the 98 sites having valid annual averages in 1981. Of the 98 sites, 22 (22%) had annual averages above the annual primary standard of 75 ug/m^3 and another 32 sites (33%) had annual averages in excess of the annual secondary standard of 60 ug/m^3. The percentage above the primary standard is much lower than the 36% above in 1980; the percentage above the secondary standard is slightly lower than the 37% above in 1980. The highest annual average in the state in 1981 was 190 ug/m^3 recorded at 2001 E. 20th Street in Granite City. This value is greater than the highest annual average of 170 ug/m^3 recorded in 1980. The lowest annual average in the State in 1981 was 39 ug/m^3 recorded in Lake Bluff.

Table 7 lists the sites recording excursions of the 24-hour primary standard of 260 ug/m^3, the date of occurrence, and the concentration. During 1981 at least some TSP data was collected at 116 sites even though 98 recorded sufficient data for valid annual averages. A total of 13 sites (13%) recorded at least one excursion. Of the 13 sites having excursions only 3 (all in Granite City) recorded more than one excursion and are in violation of the standard. The monitoring site at 2001 E. 20th in Granite City had 13 excursions. The highest 24-hour average in Illinois in 1981 was 889 ug/m^3 recorded at the Norfolk and Western site in Granite City.

4.3 SULFUR DIOXIDE SUMMARIES

Figure 1 depicts the statewide trend for sulfur dioxide from 1970 through 1982. The statewide average for each year is determined by taking the arithmetic average of all valid annual arithmetic means in that year. The overall trend is downward with the largest decrease occurring from 1970 through 1973 and a more gradual decrease occurring since then. The statewide average in 1981 was 22 ug/m^3 (.008 ppm) compared with 24 ug/m^3 (.009 ppm) in 1980 and 32 ug/m^3 (.012 ppm) in 1979.

Table 8 is the ranking (highest to lowest) of the 25 sites having valid annual averages in 1981. All SO_2 data from monitors operating in Illinois in 1981 were based on continuous methodologies instead of

non-continuous gas bubblers as some have been in the past. There were no violations of the annual primary standard of 0.03 ppm. The highest annual average was 0.021 ppm recorded in East St. Louis. The lowest annual average was 0.004 ppm recorded in Elgin, LaSalle and Rockford.

Table 9 lists excursions of the 24-hour primary standard of 0.14 ppm and the 3-hour secondary standard of 0.5 ppm. There were no excursions of the 3-hour standard in the statewide network in 1981. There was only one excursion (no violation) of the 24-hour standard in East St. Louis with a value of 0.146 ppm. Other excursions of the 24-hour standard recorded in industrial networks are given in Section 6.

4.4 OZONE SUMMARIES

A total of 44 locations in Illinois had at least some ozone monitoring conducted during 1981. Of these 44 locations, 37 had over 75% data capture during the ozone season (April - October).

In the data summary by Air Quality Control Region (AQCR), the ozone data is listed by the number of hours with ozone concentrations greater than 0.08 ppm (State Standard in 1981) and the number of days with ozone greater than 0.12 ppm (Federal Standard). Table 10 lists days on which excursions of the 0.12 ppm standard (hourly averages of 0.125 ppm or higher) were recorded, the site recording the excursion, and the maximum hourly concentration. A total of 18 sites recorded at least one day above 0.12 ppm. All sites recording excursions of the standard were either in the Chicago or St. Louis metropolitan areas, or in downwind areas impacted by them in the cases of LaSalle, Waterloo, and Nilwood. Waukegan recorded the most days above 0.12 ppm with four. Chicago - Taft High School recorded the highest hourly concentration in 1981 -- 0.176 ppm. Two other sites exceeded the Yellow Alert level of 0.170 ppm: Arlington Heights, 0.173 ppm; Waukegan, 0.172 ppm. It is interesting to note that in the Chicago area, of 23 site-excursion days, 19 occurred on only three different days: July 7, July 17, and July 18. Thus, overall there were very few high ozone days in 1981. Part of the reason for fewer high days was abnormally high precipitation statewide in 1981. This was particularly true in the St. Louis metropolitan area where six sites recorded more than one day above 0.12 ppm in 1980 but none recorded more than one day above 0.12 ppm in 1981.

In 1982 the Episode Unit for the Ambient Air Monitoring Section was responsible for issuing ozone summaries and advisories to the public. These summaries were issued on a daily basis from May 1 to September 30, and outside of this period special ozone advisories were issued as conditions dictated. The ozone summary was issued each day at 3:00 p.m. CDT via the Illinois Weather Wire teletype circuit. The summary contained for each ozone monitoring site, the highest 2-hour average

concentration on the previous calendar day, the current day's high 2-hour average concentration up to 2 p.m. CDT, and a general forecast of expected ozone advisory conditions. For an area to be listed as in advisory, the 2-hour concentration had to reach or exceed 70 ppb in the calendar day or the hourly concentration at 2 p.m. CDT had to be 65 ppb or greater and increasing, all of this coupled with meteorological conditons that indicate the next day's highest 2-hour average would also exceed 70 ppb.

At least one city or area was placed in ozone advisory on 38 out of 153 days during the 1981 ozone season. This represents a decrease over 1980 when 72 days had one or more sites in advisory and 1979 when 60 advisory days were recorded. Edwardsville and Collinsville had the most advisories issued in 1981 with 20. After advisories, the next alert stage is the Yellow Alert when hourly ozone concentrations equal or exceed 170 ppb and are expected to occur at that level again the next day. During 1981, only one Yellow Alert was issued, occurring on August 1 for the Waukegan area.

4.5 NITROGEN DIOXIDE SUMMARIES

A total of 21 sites had valid annual averages for nitrogen dioxide in 1981. Table 11 is the ranking (highest to lowest) of those sites. The 1981 data show a continuation of the decrease in NO_2 concentrations in the Chicago area started in 1980. None of the sites exceeded the 0.05 ppm annual standard. Cicero had the highest annual average with a value of 0.050 ppm. The lowest annual average was 0.029 ppm recorded in Chicago at the South Water Filtration Plant.

4.6 CARBON MONOXIDE SUMMARIES

During 1981 seven sites recorded excursions of the 8-hour primary standard of 9 ppm while three of these sites, Chicago: State Office Building and Logan Square, and Springfield recorded more than one excursion and are in violation of the standard. Table 12 lists the date, time period, and maximum 8-hour average for each CO excursion. Springfield recorded the highest 8-hour average with a value of 11.1 ppm. The State Office Building site in Chicago had only three excursions in 1981 continuing the downward trend since 1978. Part of the decrease in 1981 may be due to construction activity in the area which may affect the street canyon influence and improve dispersion. There were no excursions of the 1-hour primary standard of 35 ppm in 1981. The highest 1-hour average was 23.1 ppm, also recorded in Springfield.

4.7 NON-METHANE HYDROCARBON SUMMARIES

Two sites were operated for a limited period during the summer of 1981 in the Chicago area. Both sites recorded many excursions of the 6-9 a.m.

hydrocarbon standard: State Office Building, 58 out of 64 days (91%); and Northwestern University, 47 out of 62 days (76%). The highest 6-9 a.m. average was 2.0 ppm recorded at the State Office Building site.

4.8 LEAD SUMMARIES

Lead results were obtained from sites that also monitored for total suspended particulates. Table 13 lists the sites recording violations of the quarterly lead standard of 1.5 ug/m^3. Two sites, both in Granite City, violated the lead standard. The site at 15th and Madison had three quarters above the standard and the site at 20th and Adams had one quarter above. The highest quarterly average was 7.27 ug/m^3 recorded at 15th and Madison in Granite City. This is the highest quarterly lead average ever recorded in Illinois.

TABLE 6

1981 STATEWIDE TOTAL SUSPENDED PARTICULATE RANKINGS

RANKING	STATION	ADDRESS	ANNUAL GEOMETRIC MEAN (UG/M3)
1	Granite City	2001 E. 20th	190
2	Granite City	15th & Madison	139
3	Granite City	Norfolk & Western	137
4	Chicago: Washington H.S.	3500 E. 114th St.	111
5	Granite City	23rd & Madison	108
6	Granite City	23rd & Nameoki	106
7	East St. Louis	13th & Tudor	105
8	Decatur	2300 Geddes	97
9	Granite City	Roosevelt & Rock Rd.	96
10	Chicago: Chicago Ave. Pump. Sta.	805 N. Michigan Ave.	91
11	Granite City	20th & Adams	88
12	Chicago: Addams Elem. Sch.	10810 S. Ave. "H"	86
13	Blue Island	12700 Sacramento	84
13	Chicago: Anthony Elem. Sch.	9800 S. Torrence	84
15	Milan	125 W. 2nd Ave.	83
16	Wood River	54 N. Walcott	80
17	Decatur	1808 E. Locust	77
18	Bedford Park	6535 S. Central	76
19	Bradley	610 E. Liberty	76
19	Cicero	15th St. & 50th Ave.	76
19	Chicago: Farr Dormitory	3300 S. Michigan Ave.	76
19	Granite City	2040 Johnson Ave.	76
	Primary Standard		75
23	Chicago: Carver H.S.	801 E. 133rd Pl.	75
23	Rockdale	Volunteer Fire Dept.	75
25	Alton	103 E. 3rd St.	73
25	Summit	60th St. & 74th Ave.	73
27	Chicago: Hale Elem. Sch.	6140 S. Melvina	72
27	Lyons	4043 Joliet Ave.	72
29	Calumet City	755 Pulaski Rd.	71
29	Chicago: Cooley Vocational H.S.	1450 Larrabee	71
31	Harvey	157th & Lexington	70
31	Peoria	610 N.E. Jefferson	70
33	Bensenville	Main & York	69
33	Chicago: Chicago Vocational H.S.	2100 E. 87th St.	69
33	Franklin Park	3400 N. Rose St.	69
33	Joliet	1425 N. Broadway	69
33	Rock Island	1528 3rd Ave.	69
38	Decatur	600 E. Garfield	67
38	East Peoria	235 E. Washington	67
38	Joliet	Midland & Campbell	67
41	Belleville	101 S. Illinois	66
41	Chicago: South Water Filt. Plt.	3300 E. Cheltenham	66
41	Collinsville	115A W. Main	66
44	Cahokia	1201 St. Clement	65
44	Chicago: Logan Square	2940 W. Cortland	65
46	Chicago: Calumet H.S.	8131 S. May St.	64
46	East Moline	1400 13th St.	64
46	River Forest	Lathrop & Oak	64
49	Oglesby	110 W. 2nd St.	63
50	Arlington Hts.	33 S. Arlington Hts. Rd.	62
50	Petersburg	7th & Jackson	62
52	Galesburg	40 E. Simmons	61
52	Hillside	Wolf Rd. & Harrison	61
52	Springfield	2105 E. Cook St.	61
	Secondary Standard		60
55	Braidwood	Sewage Plant	60
55	Morton Grove	9111 Waukegan Rd.	60
55	Niles	8955 Greenwood Ave.	60
58	Chicago Heights	Dixie Hwy & 10th St.	59
58	Chicago: Lakeview H.S.	4015 N. Ashland	59
58	Midlothian	15202 Crawford Ave.	59
58	Peoria	1604 Detweiller	59
62	Edwardsville	Poag Rd.	58
62	Elmhurst	118 Schiller	58
62	Naperville	175 Jackson St.	58
62	Quincy	9th & Vermont	58
66	Flossmoor	999 Kedzie	57
66	South Beloit	Wheeler Ave. at Washington	57
68	Addison	130 W. Army Trail Rd.	56

TABLE 6 (CONT.)

1981
STATEWIDE TOTAL SUSPENDED PARTICULATE RANKINGS

RANKING	STATION	ADDRESS	ANNUAL GEOMETRIC MEAN (UG/M3)
68	DePue	1401 Marquette	56
68	Des Plaines	1755 S. Wolf Rd.	56
68	Lockport	5th & Madison	56
68	Oak Park	834 Lake St.	56
68	Waterloo	U.S.D.A. Building	56
74	Chicago: Sullivan H.S.	6631 N. Bosworth Ave.	55
74	Decatur	750 E. Lake Shore Dr.	55
74	Elgin	150 Dexter	55
74	Joliet	1216 Houbolt St.	55
78	Champaign	2125 S. First	54
78	Ottawa	211 E. Main	54
78	Palatine	1000 Quentin Rd.	54
81	Alsip	4500 W. 123rd St.	53
81	DeKalb	650 N. 1st St.	53
81	Joliet	501 Ella Ave.	53
81	Moline	3600 23rd Ave.	53
81	Springfield	2200 Churchill Rd.	53
81	Wheaton	201 Reber St.	53
87	Aurora	770 N. Michels	52
87	Rockford	333 15th St.	52
87	West Chicago	128 W. McConnell Ave.	52
90	Darien	1410 75th St.	51
90	Evanston	1454 Elmwood	51
92	Mt. Vernon	601 N. 18th St.	50
93	Romeoville	Naperville Rd.	49
93	Wilmette	9th St. & Central Ave.	49
95	Glen Ellyn	494 Pennsylvania St.	47
96	Cary	First & Three Oaks Rd.	46
97	Waukegan	Golf & Jackson	42
98	Lake Bluff	121 E. Sheridan Pl.	39

TABLE 7

1981

TOTAL SUSPENDED PARTICULATE VALUES IN EXCESS OF THE 24-HOUR PRIMARY STANDARD OF 260 MICROGRAMS PER CUBIC METER

STATION	ADDRESS	DATE	VALUE (UG/M^3)
66 EAST CENTRAL ILLINOIS INTRASTATE			
CHAMPAIGN COUNTY			
Champaign	2125 S. First	April 28	321
67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.)			
COOK COUNTY			
Blue Island	12700 Sacramento	April 16	350
Palatine	1000 Quentin Rd.	July 4	265
Chicago:			
Chicago Vocational H.S.	2100 E. 87th St.	February 15	311
KANKAKEE COUNTY			
Bradley	610 E. Liberty	April 4	338
70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.)			
MADISON COUNTY			
Granite City*	2001 E. 20th	January 16	294
		February 3	286
		February 27	285
		April 4	306
		April 10	289
		April 28	334
		May 4	329
		June 15	391
		August 2	304
		September 19	341
		September 25	269
		October 1	328
		November 18	305
Granite City*	15th & Madison	April 4	261
		September 25	298
		November 18	357
Granite City*	Norfolk & Western	January 16	889
		August 8	356
		October 1	369
		November 6	534
Granite City	2040 Johnson Ave.	April 4	265
Granite City	23rd & Nameoki	April 4	288
Wood River	54 N. Walcott	August 14	314
75 WEST CENTRAL ILLINOIS INTRASTATE			
MACON COUNTY			
Decatur	2300 Geddes	April 4	263

*This station is in violation of the 24-Hour Primary Standard.

TABLE 7 (CONT.)

1981

TOTAL SUSPENDED PARTICULATE VALUES IN EXCESS OF THE 24-HOUR PRIMARY STANDARD OF 260 MICROGRAMS PER CUBIC METER

STATION	ADDRESS	DATE	VALUE (UG/M^3)
MENARD COUNTY			
Petersburg	7th & Jackson	February 3	372

TABLE 8

STATEWIDE SULFUR DIOXIDE RANKINGS

RANKING	STATION	ADDRESS	ANNUAL ARITHMETIC MEAN (PPM)
	Primary Standard		.03
1	East St. Louis	13th & Tudor	.021
2	Wood River	54 N. Walcott	.013
3	Granite City	2301 Adams	.012
4	Alton	2708 Edwards	.011
4	Calumet City	868 Marquette	.011
4	Chicago: State Office Building	160 N. LaSalle	.011
7	Chicago: Northwestern University	Huron & Fairbanks	.010
7	Lyons	4043 Joliet Ave.	.010
9	Cahokia	1201 St. Clement	.009
9	Chicago Heights	Dixie Hwy. & 10th St.	.009
9	North Riverside	2350 DesPlaines Ave.	.009
9	Skokie	9800 Lawler	.009
9	Springfield	Sewage Plant	.009
14	Edwardsville	Poag Road	.008
15	Joliet	Joliet & Benton	.007
15	Marion	2209 W. Main	.007
15	Peoria	Marina	.007
18	Glen Ellyn	308 Wilson	.006
18	Pekin	272 Derby	.006
18	Waukegan	Golf & Jackson	.006
21	Moline	30 18th St.	.005
21	Peoria	Hurlburt & MacArthur	.005
23	Elgin	665 Dundee Rd.	.004
23	LaSalle	541 Chartres	.004
23	Rockford	1528 18th Ave.	.004

TABLE 9

1981

SULFUR DIOXIDE IN EXCESS OF THE PRIMARY (24-HOUR) AND SECONDARY (3-HOUR) SHORT TERM STANDARDS[Ω]

STATION	ADDRESS	DATE	AVERAGING TIME	NUMBER[✡] OF EXCURSIONS	TIME PERIOD	MAXIMUM AVERAGE (PPM)
70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.)						
ST. CLAIR COUNTY						
East St. Louis	13th & Tudor	September 10-11	24	1	05-05	.146

Ω The 24-Hour Primary Standard is 0.14 parts per million; the 3-Hour Secondary Standard is 0.50 parts per million.
✡ Non-overlapping averages greater than the Standard.

1981
OZONE IN EXCESS OF THE PRIMARY STANDARD OF ONE HOUR PER DAY GREATER THAN 0.12 PARTS PER MILLION

STATION	ADDRESS	DATE	MAXIMUM VALUE (PPM)
67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.)			
COOK COUNTY			
Arlington Heights	1211 New Wilke	July 7	173
Evanston	531 Lincoln	July 18	.129
		August 1	.151
North Riverside	2350 Des Plaines	July 7	153
Skokie	9800 Lawler	July 7	.144
		July 17	.130
		July 18	.142
Chicago:			
Museum of Science & Industry	57th & Museum	July 7	.131
Roseland	351 W. 104th St.	July 7	.167
		July 17	.129
Stevenson Elem. Sch.	8010 S. Kostner	July 7	.139
Taft H.S.	6545 W. Hurlbut	July 7	.176
		July 17	.141
KANE COUNTY			
Elgin	665 Dundee	July 3	.138
LAKE COUNTY			
Deerfield	1321 Wilmot	July 7	.141
		July 17	.161
Libertyville	1441 Lake	July 7	.163
		July 17	.138
Waukegan	Golf & Jackson	July 11	.133
		July 17	.127
		July 18	.128
		August 1	.172
McHENRY COUNTY			
Cary	First St. & Three Oaks	July 7	.164
70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.)			
MADISON COUNTY			
Alton	2708 Edwards	September 12	.127
Wood River	54 N. Walcott	September 12	.126
MONROE COUNTY			
Waterloo	USDA Building	July 10	.128
71 NORTH CENTRAL ILLINOIS INTRASTATE			
LaSALLE COUNTY			
LaSalle	541 Chartres	August 19	.127
		August 21	.128

1981

OZONE IN EXCESS OF THE PRIMARY STANDARD OF ONE HOUR PER DAY GREATER THAN 0.12 PARTS PER MILLION

STATION	ADDRESS	DATE	MAXIMUM VALUE (PPM)
75 WEST CENTRAL ILLINOIS INTRASTATE			
MACOUPIN COUNTY			
Nilwood	IEPA Trailer	August 14	125

TABLE 11

STATEWIDE NITROGEN DIOXIDE RANKINGS

RANKING	STATION	ADDRESS	ANNUAL ARITHMETIC MEAN (PPM)
	Primary Standard		.05
1	Cicero	15th St. & 50th Ave.	.050
2	Blue Island	12700 Sacramento	.049
3	Morton Grove	9111 Waukegan	.048
3	Summit	60th & 74th Ave.	.048
5	Alsip	4500 W. 123rd St.	.047
5	Des Plaines	1755 S. Wolf Rd.	.047
7	Oak Park	834 Lake St.	.046
8	Hillside	Wolf Rd. & Harrison	.045
9	Chicago: GSA Building	538 S. Clark	.044
10	Wilmette	9th St. & Central Ave.	.043
11	Harvey	157th & Lexington	.042
12	Chicago: Edgewater	5358 N. Ashland	.041
13	Chicago: State Office Building	160 N. LaSalle	.038
14	Chicago: Cooley Vocational H.S.	1450 Larrabee	.037
14	Flossmoor	999 Kedzie	.037
16	Chicago: Steinmetz H.S.	3030 N. Mobile	.035
16	Chicago: Stevenson Elem. Sch.	8010 S. Kostner	.035
16	Chicago: Taft H.S.	6545 W. Hurlbut	.035
19	Chicago: Northwestern University	Huron & Fairbanks	.032
20	Chicago: Addams Elem. Sch.	10810 S. Ave. "H"	.031
21	Chicago: South Water Filt. Plant	3300 E. Cheltenham	.029

TABLE 12

1981

CARBON MONOXIDE IN EXCESS OF THE 8-HOUR PRIMARY STANDARD OF 9 PARTS PER MILLION

STATION	ADDRESS	DATE	TIME PERIOD	NUMBER OF 8-HOUR AVERAGES >9 PPM✡	MAXIMUM 8-HOUR AVERAGE (PPM)
65 BURLINGTON-KEOKUK INTERSTATE (IOWA - ILL.)					
PEORIA COUNTY					
Peoria	Glen & University	October 27 - 28	1600 -0200	1	9.7
67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.)					
COOK COUNTY					
Chicago:					
Logan Square*	3228 W. Palmer	July 31 - Aug. 1	1900 - 0600	1	10.3
		October 27 - 28	1700 - 0100	1	9.6
State Office Building*	160 N. LaSalle	January 23	1200 - 2000	1	9.6
		February 10	0900 - 2000	1	10.6
		February 20	1000 - 1800	1	9.6
WILL COUNTY					
Joliet	71 N. Ottawa	February 10	1000 - 1800	1	9.5
70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.)					
MADISON COUNTY					
Granite City	2001 Edison	October 16	0800 - 1900	1	10.6
73 ROCKFORD-JANESVILLE-BELOIT INTERSTATE (ILL. - WIS.)					
WINNEBAGO COUNTY					
Rockford	425 E. State	January 23	1600 - 2400	1	9.5
75 WEST CENTRAL ILLINOIS INTRASTATE					
SANGAMON COUNTY					
Springfield*	6th St. & Monroe	January 20	0600 - 2200	2	11.1
		January 30	0900 - 2100	1	10.9

✡These are non-overlapping 8-hour averages.
*This station is in violation of the 8-Hour Primary Standard.

TABLE 13

1981
LEAD VALUES IN EXCESS OF THE QUARTERLY PRIMARY STANDARD OF 1.5 MICROGRAMS PER CUBIC METER

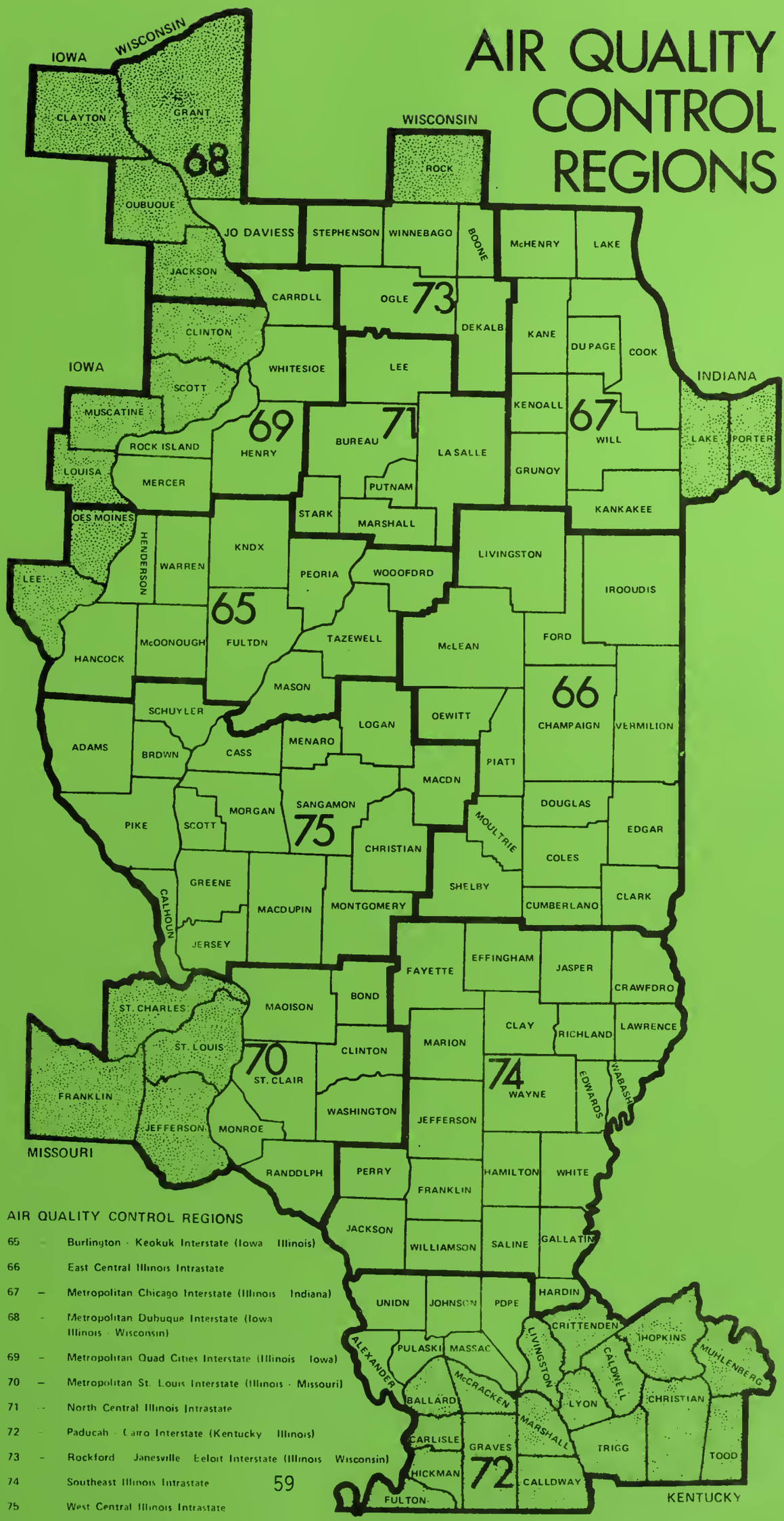
STATION	ADDRESS	CALENDAR QUARTER	VALUE (UG/M^3)
70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.)			
MADISON COUNTY			
Granite City*	15th & Madison	1st	2.07
		3rd	1.77
		4th	7.27
Granite City*	20th & Adams	2nd	1.58

*This station is in violation of the Quarterly Primary Standard.

5.0

1981 REGIONAL AIR QUALITY DATA

AIR QUALITY CONTROL REGIONS



AIR QUALITY CONTROL REGIONS

65 – Burlington - Keokuk Interstate (Iowa - Illinois)

66 East Central Illinois Intrastate

67 – Metropolitan Chicago Interstate (Illinois - Indiana)

68 – Metropolitan Dubuque Interstate (Iowa - Illinois - Wisconsin)

69 – Metropolitan Quad Cities Interstate (Illinois - Iowa)

70 – Metropolitan St. Louis Interstate (Illinois - Missouri)

71 – North Central Illinois Intrastate

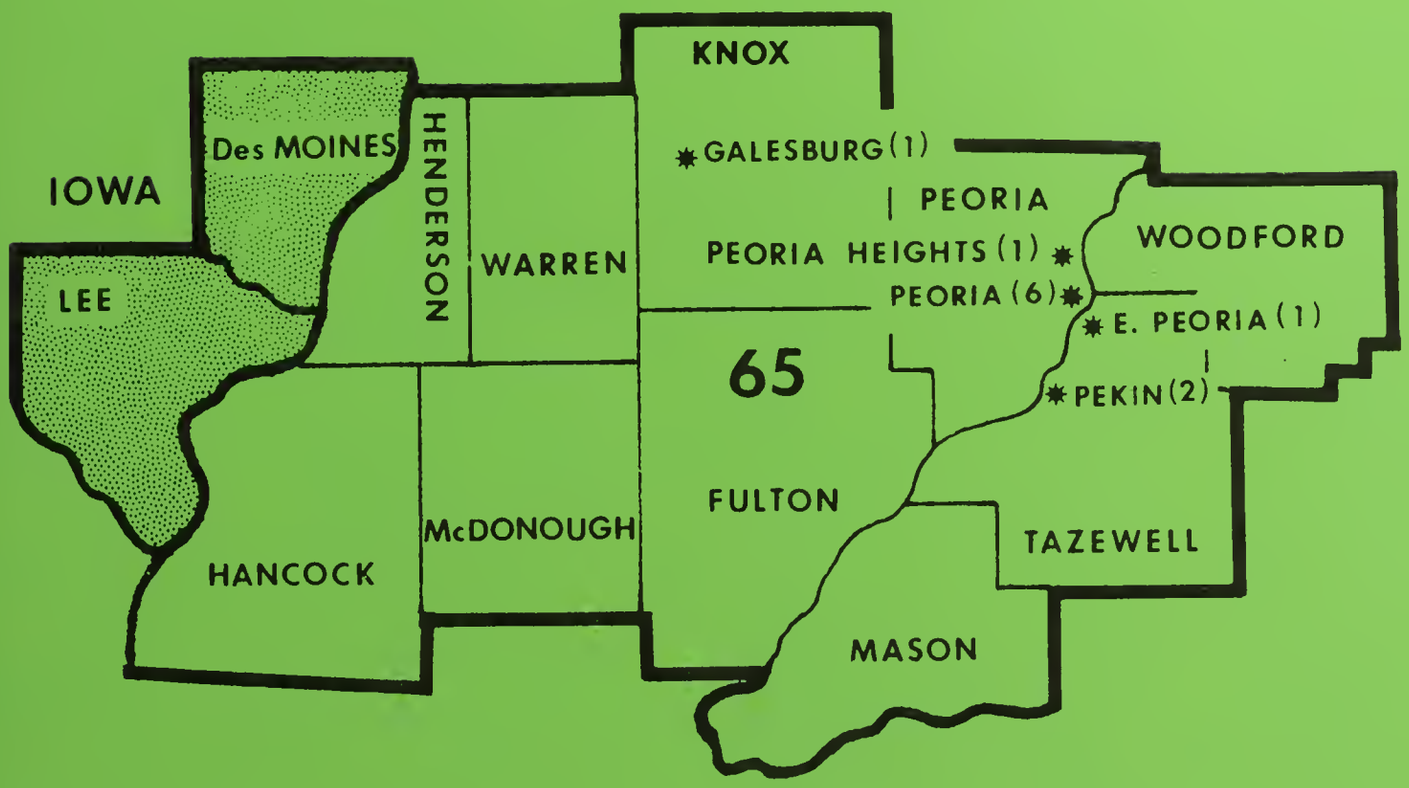
72 – Paducah - Cairo Interstate (Kentucky - Illinois)

73 – Rockford - Janesville - Beloit Interstate (Illinois - Wisconsin)

74 Southeast Illinois Intrastate

75 West Central Illinois Intrastate

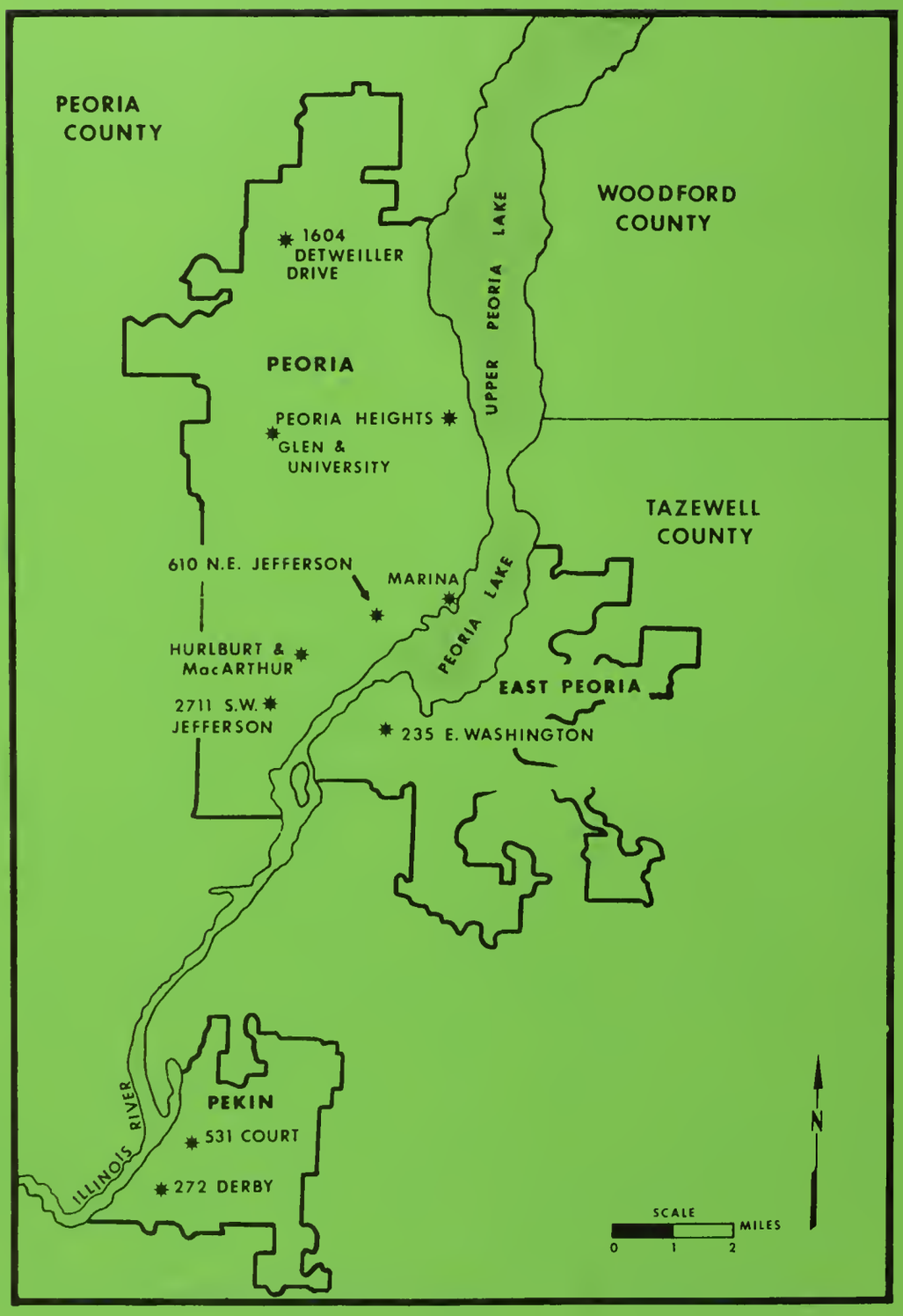
AIR QUALITY CONTROL REGION 65
BURLINGTON - KEOKUK INTERSTATE
(IOWA - ILLINOIS)



Data for the Iowa portion of this control region can be obtained from:
Iowa Department of Environmental Quality,
Henry A. Wallace Building
900 E. Grand Avenue
Des Moines, Iowa 50319
(515) 281-8692

(The number of sampling sites in each city is shown in parenthesis following the city name.)

PEORIA AREA


PEORIA COUNTY
WOODFORD COUNTY
TAZEWELL COUNTY
1604 DETWEILLER DRIVE
PEORIA
PEORIA HEIGHTS
GLEN & UNIVERSITY
UPPER PEORIA LAKE
PEORIA LAKE
610 N.E. JEFFERSON
MARINA
HURLBURT & MacARTHUR
2711 S.W. JEFFERSON
EAST PEORIA
235 E. WASHINGTON
PEKIN
531 COURT
272 DERBY
ILLINOIS RIVER
SCALE
MILES
0
1
2
N

Total Suspended Particulates

Four of the six sites in the Illinois portion of this AQCR recorded valid annual averages for TSP. All four of these sites were below the primary annual standard of 75 ug/m^3 with Peoria - 610 N.E. Jefferson recording the highest annual mean of 70 ug/m^3. Two of these sites (Peoria - 610 N.E. Jefferson and East Peoria) exceeded the standard in 1980, but showed decreases of 11 ug/m^3 and 10 ug/m^3 respectively, in 1981. The Peoria - 1604 Detweller site was the only site below the secondary annual standard of 60 ug/m^3 with an annual mean of 59 ug/m^3. None of the sites in this AQCR exceeded the 24-hour primary standard of 260 ug/m^3.

Lead

None of the sites exceeded the primary quarterly lead standard of 1.5 ug/m^3. The highest quarterly average was 0.53 ug/m^3 recorded in Peoria at 2711 S.W. Jefferson.

Sulfur Dioxide

All three sites in the Illinois portion of this AQCR had sufficient data for valid annual averages. These sites are well below the primary annual standard of 0.03 ppm. The highest annual average was 0.007 ppm recorded at the Peoria - Marina site. Pekin recorded the highest 3-hour and 24-hour averages with 0.326 ppm and 0.100 ppm, respectively. These values are below the 3-hour secondary standard of 0.5 ppm and the 24-hour primary standard of 0.14 ppm.

Ozone

Three ozone monitoring sites operated for all or most of the 1981 ozone season (April - October). None of these sites recorded any days with ozone concentrations above 0.12 ppm (Federal standard) with Peoria Heights recording the highest 1-hour average of 0.111 ppm. All three sites recorded more than one hour above 0.08 ppm (State standard) with Peoria Heights recording the most, 36.

Carbon Monoxide

The only site in the Illinois portion of this AQCR was operated in Peoria. This site recorded one excursion of the 8-hour primary standard of 9 ppm with a level of 9.7 ppm. The highest 1-hour average was 18.4 ppm, significantly below the 1-hour standard of 35 ppm.

Nitrogen Dioxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the Illinois portion of this AQCR.

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
KNOX COUNTY										
Galesburg	40 E. Simmons	54	0	0	118	116	99	97	61	1.4
PEORIA COUNTY										
Peoria	610 N.E. Jefferson	46	1	0	175	114	113	108	70	1.4
Peoria	2711 S.W. Jefferson	40	1	0	194	127	126	109	+	
Peoria	1604 Detweiller	53	1	0	198	119	93	91	59	1.4
TAZEWELL COUNTY										
East Peoria	235 E. Washington	44	1	0	165	119	102	100	67	1.4
Pekin	531 Court	52	1	0	218	136	119	109	+	

SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

STATION	ADDRESS	ANNUAL MEAN (UG/M3)						
		1975	1976	1977	1978	1979	1980	1981
KNOX COUNTY								
Galesburg	40 E. Simmons	73	67	58	63	60	61	61
PEORIA COUNTY								
Peoria	610 N.E. Jefferson	91	98	86	102	87	81	70
Peoria	2711 S.W. Jefferson	90	90	88	89	88	80	+
Peoria	1604 Detweiller	58	66	61	63	62	62	59
TAZEWELL COUNTY								
East Peoria	235 E. Washington	95	96	88	104	81	77	67
Pekin	531 Court	77	81	+	71	+	65	+

+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SULFUR DIOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NUMBER OF SAMPLES				HIGHEST SAMPLES (PPM)				ANNUAL STATISTICS	
		1 HR	24 HR	3-HR AVGS >.5	24-HR AVGS >.14	3-HR. AVG. 1st	3-HR. AVG. 2nd	24-HR. AVG. 1st	24-HR. AVG. 2nd	ARITH. MEAN	STD. GEO. DEVIATION
PEORIA COUNTY											
Peoria	Hurlburt & MacArthur	7984		0	0	.055	.052	.035	.030	.005	2.69
Peoria	Marina	8376		0	0	.077	.075	.035	.034	.007	2.95
TAZEWELL COUNTY											
Pekin	272 Derby	7958		0	0	.326	.321	.100	.031	.006	2.75

SHORT-TERM TRENDS FOR SULFUR DIOXIDE

STATION	ADDRESS	ANNUAL MEAN (PPM)						
		1975	1976	1977	1978	1979	1980	1981
PEORIA COUNTY								
Peoria	Hurlburt & MacArthur	.027	.019	.020	.016	.009	.007	.005
Peoria	Marina	-	-	-	-	-	-	.007
TAZEWELL COUNTY								
Pekin	272 Derby	.016	.017	.018	.016	.012	.008	.006

OZONE
(PARTS PER MILLION)

STATION	ADDRESS	NO. OF SAMPLES		HIGHEST SAMPLES (PPM)									
		TOTAL	>.08 PPM	DAYS >.12	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	ANNUAL 1st	ANNUAL 2nd
PEORIA COUNTY													
Peoria	Hurlburt & MacArthur	8061	11	0	.070	.087	.071	.082	.106	.079	.048	.106	.087
Peoria Heights	504 E. Glen	8151	36	0	.065	.085	.088	.089	.111	.090	.055	.111	.091
WARREN COUNTY													
Monmouth	Monmouth College	3863	14	0	NS	.078	.078	.091	.088	.066	.062	.091	.088

- Station not in operation during year shown.

1981
CARBON MONOXIDE
(PARTS PER MILLION)

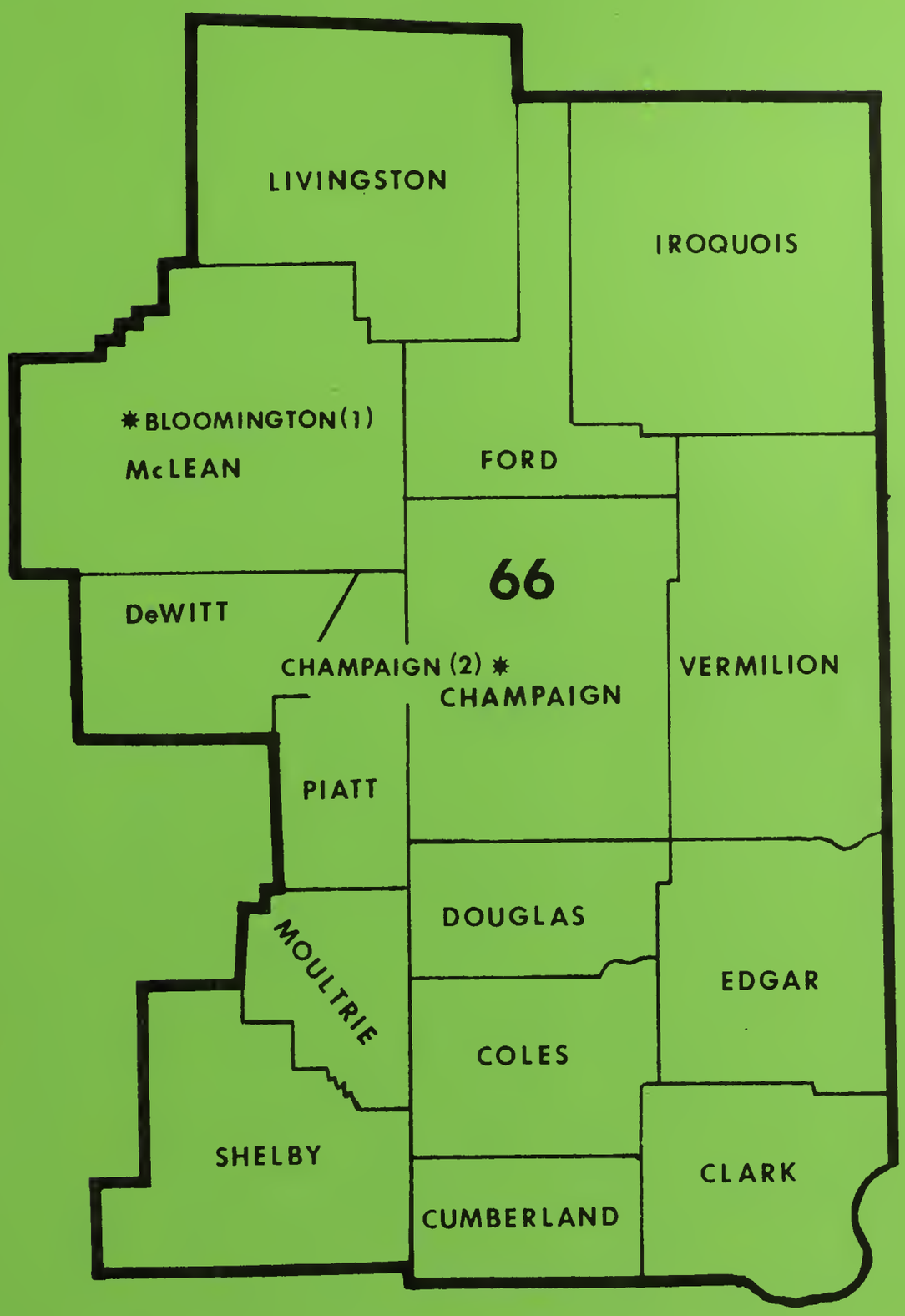
STATION	ADDRESS	NO OF SAMPLES	NUMBER OF AVERAGES		HIGHEST					
			1 - HR > 35 PPM	8 - HR > 9 PPM	1-HR AVERAGE			8-HR AVERAGE		
					1st	2nd	3rd	1st	2nd	3rd
PEORIA COUNTY										
Peoria	Glen & University	5737	0	1	18.4	14.6	12.6	9.7	6.7	6.4

LEAD
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m3	QUARTERLY AVERAGES (ug/m3)				ANNUAL MEAN (ug/m3)
			1st	2nd	3rd	4th	
KNOX COUNTY							
Galesburg	40 E. Simmons	0	0.12	0.09	0.12	0.18	0.13
PEORIA COUNTY							
Peoria	610 N.E. Jefferson	0	0.28	0.16	0.33	0.35	0.28
Peoria	2711 S.W. Jefferson	0	0.53	0.16	0.23	+	+
Peoria	1604 Detweiller	0	0.10	0.13	0.12	0.14	0.12
TAZEWELL COUNTY							
East Peoria	235 E. Washington	0	0.24	0.24	0.27	0.33	0.27
Pekin	531 Court	0	0.20	0.12	0.17	0.25	0.19

+ Did not meet minimum statistical selection criteria (See Section 4.1).

AIR QUALITY CONTROL REGION 66
EAST CENTRAL ILLINOIS INTRASTATE



(The number of sampling sites in each city is shown in parenthesis following the city name.)

EAST CENTRAL ILLINOIS INTRASTATE
AIR QUALITY CONTROL REGION (AQCR) 66

Total Suspended Particulates

Champaign was the only site in this AQCR with a valid annual average. The annual geometric mean was 54 ug/m^3, less than the annual secondary standard of 60 ug/m^3. Champaign recorded one exceedence of the 24-hour primary standard of 260 ug/m^3 with a value of 321 ug/m^3. This value occurred on a day that exhibited high TSP state wide due to high winds and dry spring conditions. The next highest value was 136 ug/m^3 less than the 24-hour secondary standard of 150 ug/m$_3$.

Lead

There were no violations of the quarterly lead standard of 1.5 ug/m^3. The highest quarterly average was 0.23 ug/m^3 in Bloomington.

Ozone

The monitoring site in Champaign did not record any days with concentrations above the Federal standard of 0.12 ppm. This site recorded 17 hours with ozone concentrations above the State standard of 0.08 ppm with the highest hourly concentration being 0.088 ppm.

Sulfur Dioxide, Nitrogen Dioxide, Carbon Monoxide, Non-Methane Hydrocarbons

Date for these pollutants not collected in this AQCR.

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
CHAMPAIGN COUNTY										
Champaign	2125 S. First	47	1	1	321	136	99	97	54	1.[illegible]
MC LEAN COUNTY										
Bloomington	301 W. Washington	30	0	0	105	97	92	91	+	

SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

STATION	ADDRESS	ANNUAL MEAN (UG/M3)						
		1975	1976	1977	1978	1979	1980	1981
CHAMPAIGN COUNTY								
Champaign	2125 S. First	46	56	56	51	52	59	54
MC LEAN COUNTY								
Bloomington	301 W. Washington	64	75	72	+	+	+	+

OZONE
(PARTS PER MILLION)

STATION	ADDRESS	NO. OF SAMPLES		HIGHEST SAMPLES (PPM)									
		TOTAL	>.08 PPM	DAYS >.12	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	ANNUAL 1st	ANNUAL 2nd
CHAMPAIGN COUNTY													
Champaign	606 E. Grove	7989	17	0	.082	.085	.086	.088	.079	.084	.062	.088	.086

+ Did not meet minimum statistical selection criteria (See Section 4.1).

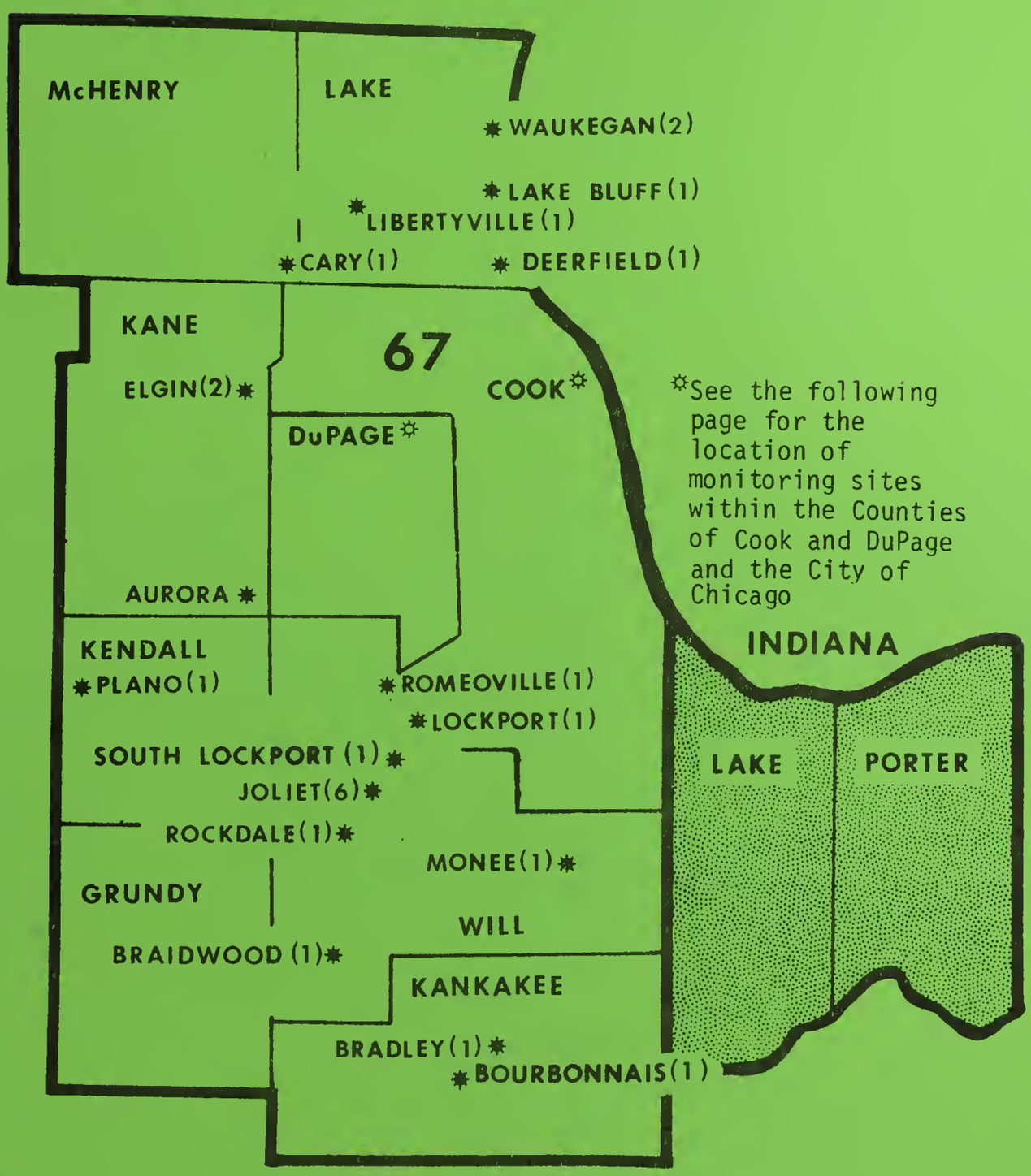
1981
LEAD

(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m3	QUARTERLY AVERAGES (ug/m3)				ANNUAL MEAN (ug/m3)
			1st	2nd	3rd	4th	
CHAMPAIGN COUNTY							
Champaign	2125 S. First	0	0.08	0.07	0.09	+	0.08
MC LEAN COUNTY							
Bloomington	301 W. Washington	0	+	0.14	+	0.23	+

+ Did not meet minimum statistical selection criteria (See Section 4.1).

AIR QUALITY CONTROL REGION 67
METRO CHICAGO INTERSTATE
(ILLINOIS - INDIANA)

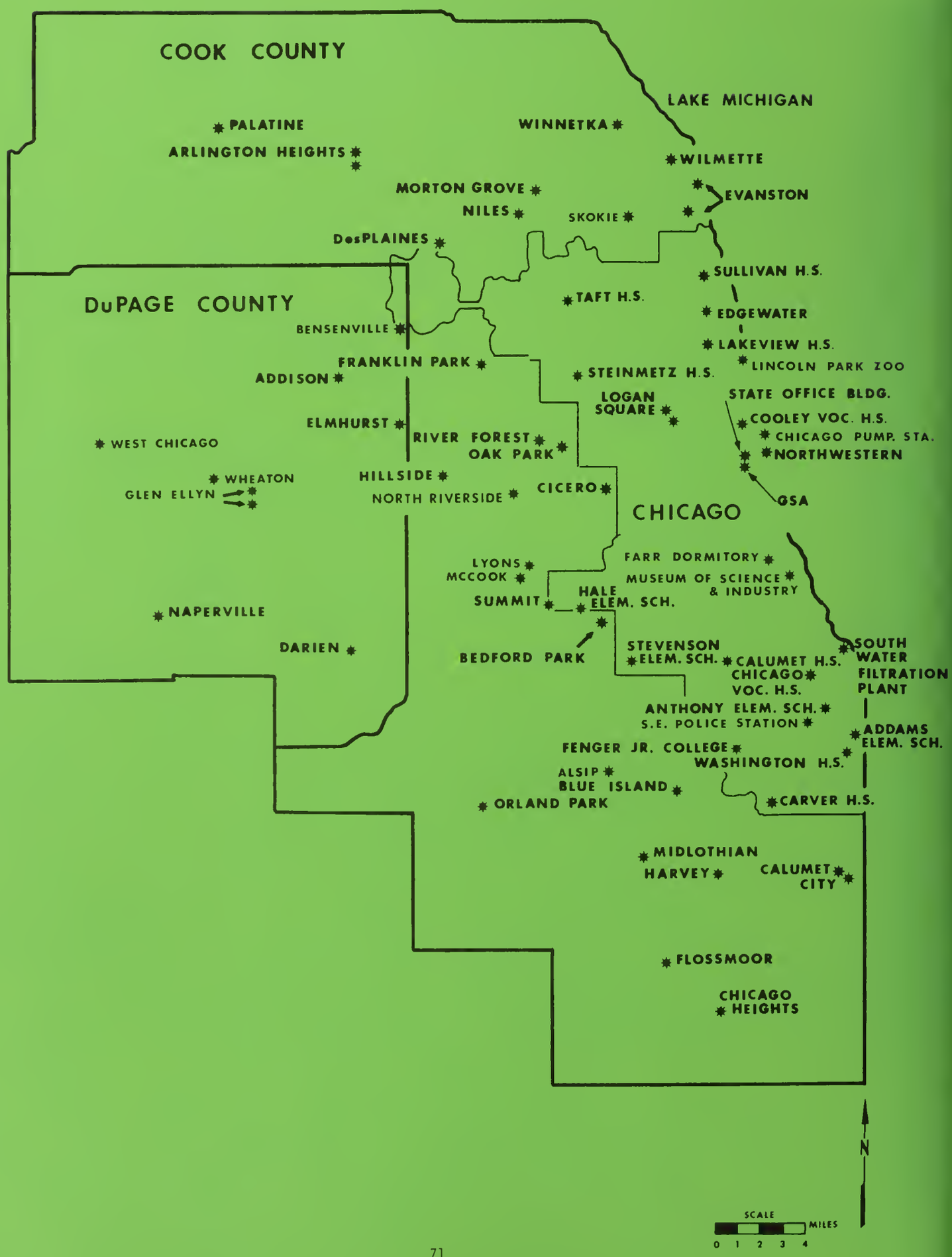


See the following page for the location of monitoring sites within the Counties of Cook and DuPage and the City of Chicago

Data for the Indiana portion of this control region can be obtained from:
Indiana State Board of Health
Air Pollution Control Division
1330 West Michigan Street
Indianapolis, Indiana 46206
(317) 633-0644

(The number of sampling sites in each city is shown in parenthesis following the city name.)

COOK and DuPAGE COUNTIES INCLUDING CHICAGO



Total Suspended Particulates

In the Illinois portion of AQCR 67 a total of 58 sites had sufficient data for a valid annual average. Annual geometric means in excess of the annual primary standard of 75 ug/m^3 were recorded at nine (16%) sites in 1981. This is a significant drop from the 27% of the sites above the standard in 1980 and 30% in 1979. Washington High School in Chicago again recorded the highest annual average in the Illinois portion of AQCR 67 with 111 ug/m^3. This value is lower than the 119 ug/m^3 in 1980 and the 129 ug/m^3 recorded at this site in 1979 and is the lowest maximum average ever recorded in Chicago. Blue Island recorded the highest annual average outside of the City of Chicago with an annual average of 84 ug/m^3.

In Chicago 11 of 12 sites recorded lower annual averages in 1981 than in 1980. In the remainder of the Illinois portion of this AQCR, 33 of 41 sites recorded lower annual averages in 1981 than 1980. Figure 2 is a map of the Chicago area listing the annual geometric means.

Four sites each recorded one value in excess of the primary 24-hour standard of 260 ug/m^3. Blue Island recorded the highest 24-hour sample with a value of 350 ug/m^3. Of the 58 sites, 30 recorded one or more samples above the 24-hour secondary standard of 150 ug/m^3.

Lead

No quarterly averages were recorded that exceeded the quarterly standard of 1.5 ug/m^3. The highest quarterly average was 0.89 ug/m^3 recorded in Chicago at Washington High School. The highest quarterly average recorded outside of the City of Chicago was 0.84 ug/m^3 recorded at Elgin.

Sulfur Dioxide

A total of 11 sites had sufficient data collection for valid annual averages. All of the sites were well below the primary annual standard at 0.03 ppm with the highest annual average of 0.011 ppm at both Calumet City and the State Office Building in Chicago. Nearly all sites in the Illinois portion of this AQCR recorded lower annual averages in 1981 than in 1980. Figure 3 is a map of the Chicago area listing the annual means.

No excursions of the 24-hour primary standard of 0.14 ppm or the 3-hour secondary standard of 0.5 ppm were recorded in the Illinois portion of this AQCR in 1981. The highest 24-hour average of 0.101 ppm was recorded at the Southeast Police Station in Chicago and the highest 3-hour average of 0.153 ppm was recorded at Lyons.

Ozone

In the Illinois portion of this AQCR a total of 20 sites monitored for ozone in 1981. Of these sites 13 recorded at least one day with concentrations above 0.12 ppm and seven of the 13 recorded more than one day above 0.12 ppm. The most days above 0.12 ppm were recorded at Waukegan with four and the site with the most hours above 0.08 ppm was Evanston with 83. The highest 1-hour concentration in 1981 was 0.176 ppm recorded at Taft H. S. in Chicago. In general the peak concentrations and the number of days above 0.12 ppm in 1981 were similar to those in 1980. The number of hours above 0.08 ppm in 1981 was well below the number recorded in 1980 in Cook County outside of Chicago. In the City of Chicago and the counties in the AQCR other than Cook, the number of hours above 0.08 ppm in 1981 was very similar to the number recorded in 1980.

Nitrogen Dioxide

A total of 21 sites monitored for NO_2 in the Illinois portion of AQCR 67 in 1981. The decrease in annual averages that began in 1980 continues in 1981 with none of the sites exceeding the primary annual standard of 0.05 ppm. This compares with seven sites above in 1980 and 19 sites above the standard in 1979. The highest annual average was recorded in Cicero with a value of 0.050 ppm. The highest 1-hour average was 0.274 ppm at Lincoln Park Zoo in Chicago and the highest 24-hour average was 0.109 ppm at Morton Grove. Figure 4 is a map of the Chicago area listing the annual means.

Carbon Monoxide

Eight sites monitored CO for all or part of 1981 in the Illinois portion of AQCR 67. Three sites recorded excursions of the 8-hour primary standard of 9 ppm; the State Office Building with three and Logan Square with two, both in Chicago, and Joliet - 71 North Ottawa with one. The three excursions at the State Office Building are significantly less than the number recorded in past years; 29 excursions in 1980, 59 in 1979 and 84 in 1978. The highest 8-hour average of 10.6 ppm and the highest 1-hour average of 22.5 ppm, well below the 1-hour primary standard of 35 ppm, were also recorded at the State Office Building.

Non-Methane Hydrocarbons

Non-Methane hydrocarbon data was collected at two sites in the Illinois portion of AQCR 67 for part of 1981. The sites in Chicago, at Northwestern University and the State Office Building, were operated from July to October. The highest 3-hour (6 to 9 am) averages for each month at each site were in excess of the primary standard of 0.24 ppm. They ranged from a high 3-hour average of 2.0 ppm at the State Office Building in September to a low of 0.3 ppm at Northwestern University in October. For Northwestern University 47 of 62 days exceeded the standard and at the State Office Building 58 of 64 days exceeded the standard.

COOK and DuPAGE COUNTIES including CHICAGO

TOTAL SUSPENDED PARTICULATES
ANNUAL GEOMETRIC MEAN
(MICROGRAMS PER CUBIC METER)

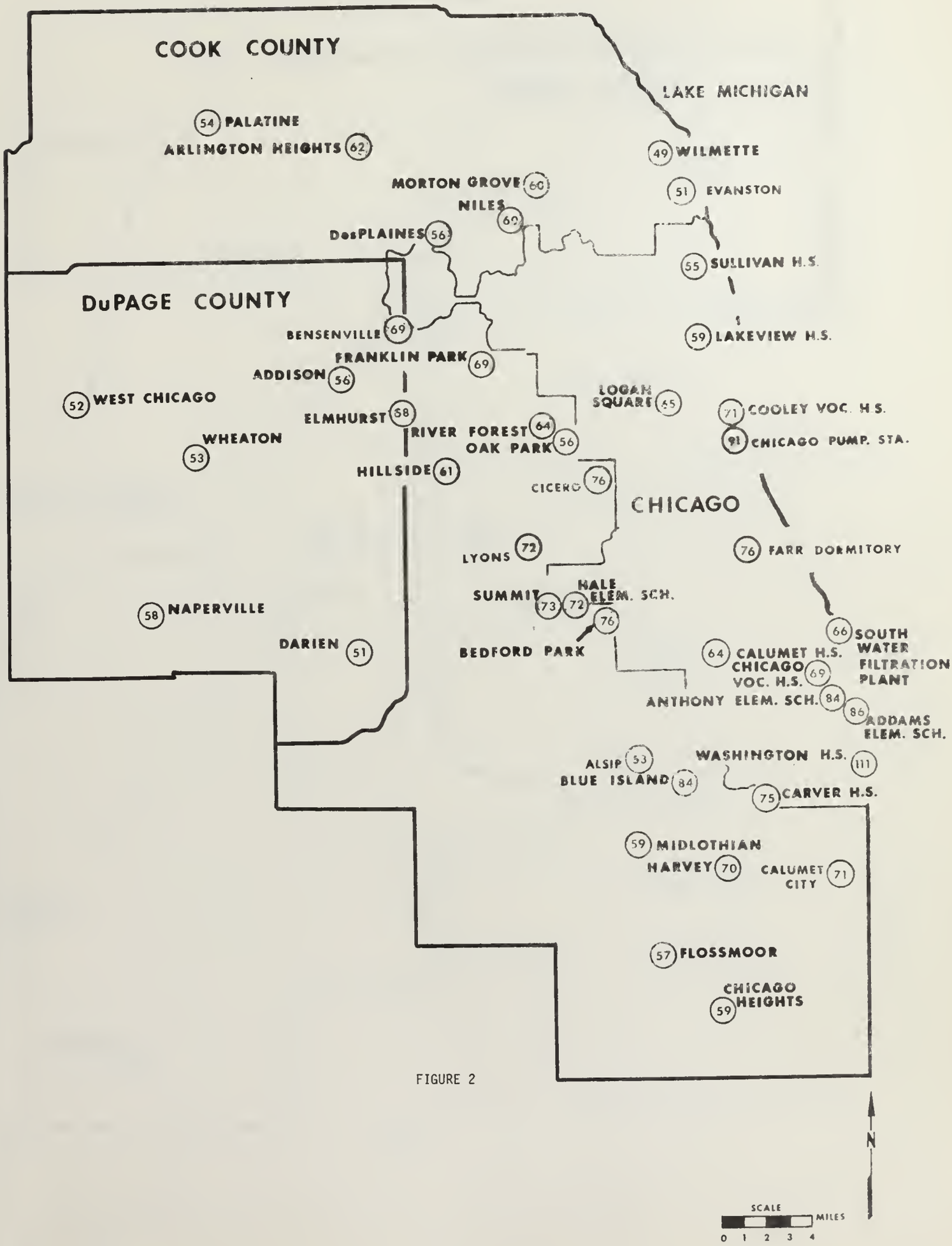


FIGURE 2

COOK COUNTY
including CHICAGO
SULFUR DIOXIDE
ANNUAL ARITHMETIC MEAN
(PARTS PER MILLION)

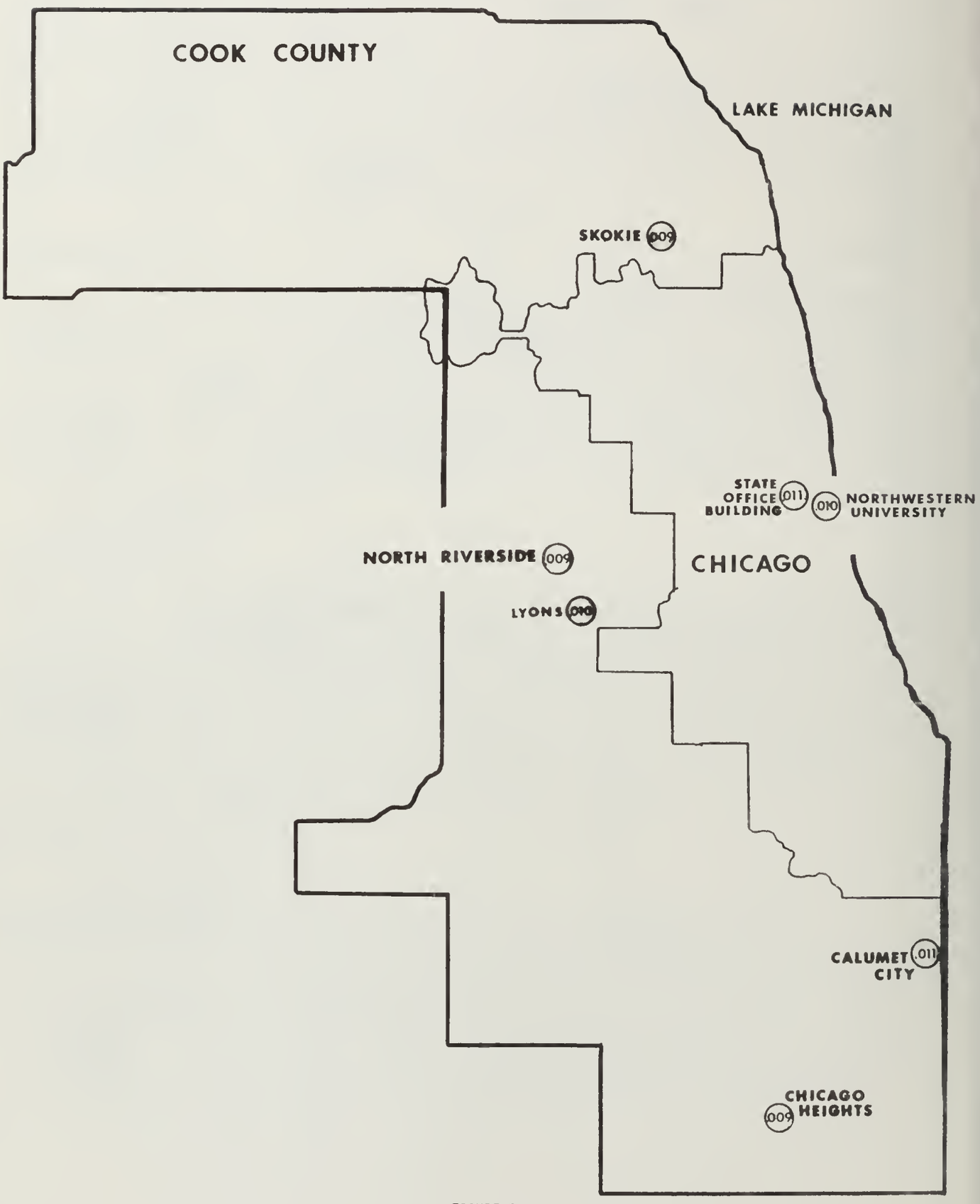


FIGURE 3

N

SCALE MILES
0 1 2 3 4

COOK COUNTY
including CHICAGO
NITROGEN DIOXIDE
ANNUAL ARITHMETIC MEAN
(PARTS PER MILLION)

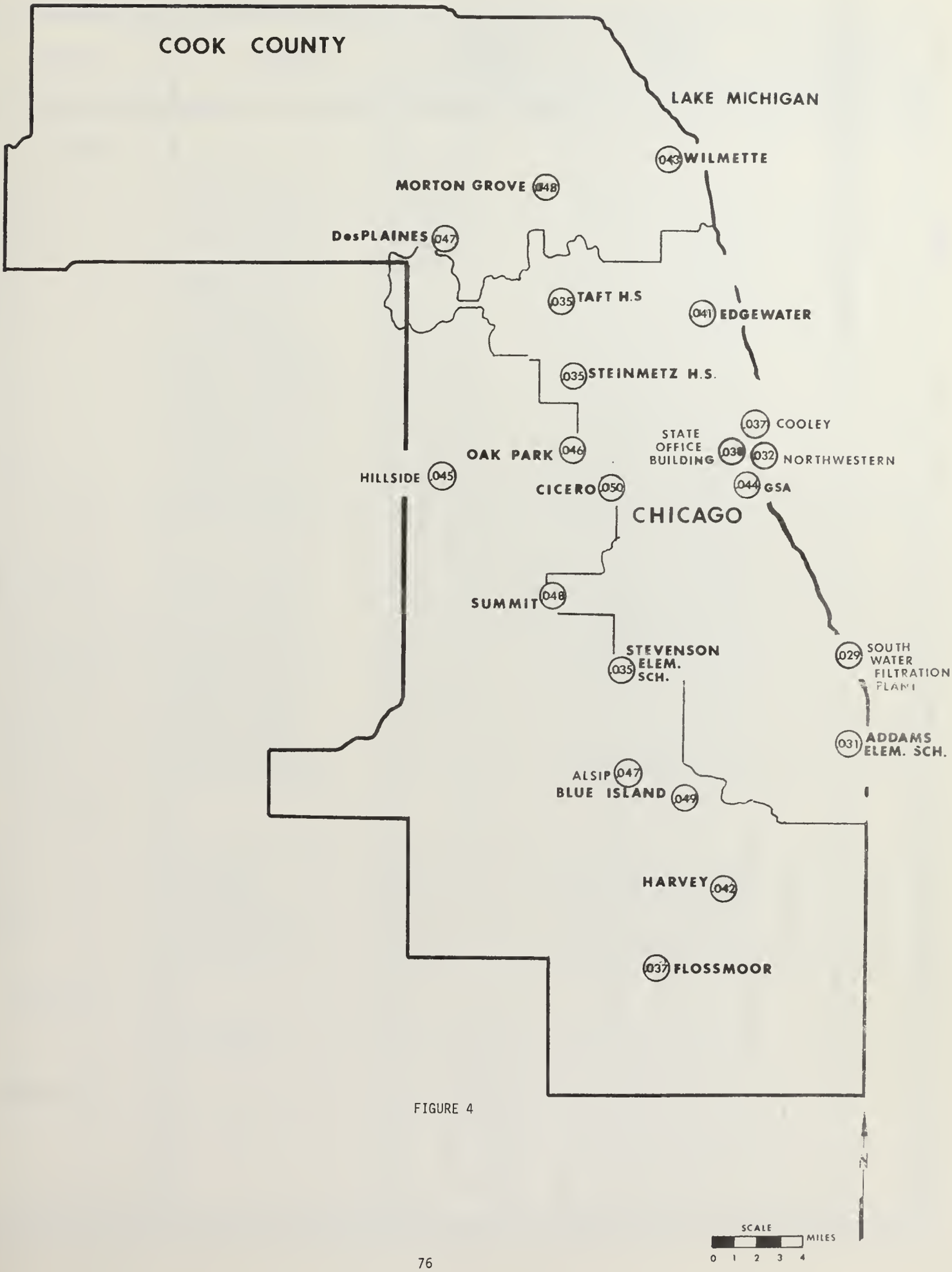


FIGURE 4

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
COOK COUNTY										
Alsip	4500 W. 123rd St.	53	0	0	107	104	92	91	53	1.4
Arlington Heights	33 S. Arlington Hts. Rd.	56	0	0	139	113	113	112	62	1.5
Bedford Park	6535 S. Central	54	1	0	154	150	146	143	76	1.5
Blue Island	12700 Sacramento	50	4	1	350	168	168	152	84	1.5
Calumet City	755 Pulaski Rd.	60	3	0	181	171	154	147	71	1.5
Chicago Heights	Dixie Hwy. & 10th St.	58	1	0	205	141	135	120	59	1.5
Cicero	15th St. & 50th Ave.	55	0	0	133	132	130	129	76	1.4
Des Plaines	1755 S. Wolf Rd.	58	0	0	119	111	103	102	56	1.5
Evanston	1454 Elmwood	57	0	0	119	115	108	106	51	1.7
Flossmoor	999 Kedzie Ave.	52	0	0	135	126	122	104	57	1.5
Franklin Park	3400 N. Rose St.	56	3	0	175	169	165	150	69	1.6
Harvey	157th & Lexington	58	1	0	165	149	139	127	70	1.5
Hillside	Wolf Rd. & Harrison	57	0	0	135	133	116	114	61	1.5
Lyons	4043 Joliet Ave.	56	3	0	166	161	159	142	72	1.6
McCook	50th St. & Glencoe	17	1	0	154	119	93	88	+	
Midlothian	15202 Crawford Ave.	57	1	0	208	130	119	112	59	1.5
Morton Grove	9111 Waukegan Rd.	55	0	0	125	124	123	104	60	1.4
Niles	8955 Greenwood Ave.	55	0	0	132	119	117	105	60	1.5
Oak Park	834 Lake St.	57	0	0	135	112	110	101	56	1.5
Orland Park	133rd & LaGrange Rd.	32	0	0	122	117	111	100	+	
Palatine	1000 Quentin Rd.	55	3	1	265	185	175	119	54	1.7
River Forest	Lathrop & Oak	59	1	0	224	136	127	118	64	1.5
Summit	60th & 74th Ave.	57	0	0	129	124	123	119	73	1.4
Wilmette	9th St. & Central Ave.	55	0	0	120	114	109	108	49	1.6
Winnetka	1112 Willow Rd.	30	0	0	124	98	76	70	+	
Chicago:										
Addams Elem. Sch.	10810 S. Ave. "H"	60	3	0	185	177	169	147	86	1.5
Anthony Elem. Sch.	9800 S. Torrence	50	5	0	177	175	168	167	84	1.6
Calumet H.S.	8131 S. May St.	58	0	0	139	124	122	117	64	1.5
Carver H.S.	801 E. 133rd Pl.	54	3	0	166	164	154	145	75	1.5
Chicago Ave. Pump. Sta.	805 N. Michigan Ave.	55	6	0	168	163	161	155	91	1.5
Chicago Vocational H.S.	2100 E. 87th St.	58	2	1	311	151	136	133	69	1.6
Cooley Vocational H.S.	1450 Larrabee	60	3	0	185	168	161	139	71	1.6
Farr Dormitory	3300 S. Michigan Ave.	51	1	0	162	150	143	137	76	1.5
Fenger Jr. College	11220 S. Wallace	45	0	0	131	125	123	118	+	
Hale Elem. Sch.	6140 S. Melvina	58	0	0	142	139	132	132	72	1.5
Lakeview H.S.	4015 N. Ashland	56	1	0	154	137	136	136	59	1.7
Logan Square	2940 W. Cortland	60	0	0	141	136	134	121	65	1.5
South Water Filt. Plnt.	3300 E. Cheltenham Pl.	60	3	0	195	168	159	148	66	1.7
Sullivan H.S.	6631 N. Bosworth Ave.	59	0	0	142	124	121	116	55	1.6
Washington H.S.	3500 E. 114th St.	60	15	0	254	229	224	204	111	1.5
DU PAGE COUNTY										
Addison	130 W. Army Trail Rd.	60	0	0	125	114	102	99	56	1.5
Bensenville	Main & York	61	0	0	145	142	138	136	69	1.5
Darien	1410 75th St.	54	0	0	111	97	96	90	51	1.5
Elmhurst	118 Schiller	54	0	0	137	125	122	106	58	1.5
Glen Ellyn	494 Pennsylvania St.	68	1	0	152	104	102	99	47	1.6
Naperville	175 Jackson St.	59	0	0	133	126	119	109	58	1.5
West Chicago	128 W. McConnell Ave.	53	0	0	145	141	127	119	52	1.6
Wheaton	201 Reber St.	58	1	0	153	117	105	95	53	1.5
KANE COUNTY										
Aurora	770 N. Michels	51	0	0	126	125	103	97	52	1.5
Elgin	150 Dexter	52	1	0	186	126	105	94	55	1.6
KANKAKEE COUNTY										
Bradley	610 E. Liberty	49	3	1	338	229	190	148	76	1.7

+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GE DEVIATIC
LAKE COUNTY										
Lake Bluff	121 E. Sheridan Pl.	54	0	0	116	108	98	90	39	1.7
Waukegan	106 Utica	39	0	0	116	113	110	97	+	
Waukegan	Golf & Jackson	52	0	0	97	89	76	76	42	1.6
MC HENRY COUNTY										
Cary	First & Three Oaks Rd.	58	0	0	112	98	97	95	46	1.5
WILL COUNTY										
Braidwood	Sewage Plant	51	0	0	135	135	127	119	60	1.6
Joliet	Midland & Campbell Sts.	56	5	0	177	165	161	158	67	1.7
Joliet	1425 N. Broadway	53	4	0	202	161	159	153	69	1.7
Joliet	1216 Houbolt St.	50	1	0	152	113	104	99	55	1.5
Joliet	501 Ella Ave.	47	1	0	201	136	120	107	53	1.9
Lockport	5th & Madison	56	0	0	112	111	106	105	56	1.4
Monee	432 E. Main St.	40	0	0	140	139	122	107	+	
Rockdale	Volunteer Fire Dept.	49	1	0	208	147	143	124	75	1.4
Romeoville	Naperville Rd.	52	0	0	137	119	118	113	49	1.8

+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

STATION	ADDRESS	ANNUAL MEAN (UG/M^3)						
		1975	1976	1977	1978	1979	1980	1981
COOK COUNTY								
Alsip	4500 W. 123rd St.	-	-	-	-	-	58	53
Arlington Heights	33 S. Arlington Hts. Rd.	72	67	62	62	79	69	62
Bedford Park	6535 S. Central	104	78	73	81	+	81	76
Blue Island	12700 Sacramento	92	85	78	80	97	91	84
Calumet City	755 Pulaski Rd.	77	74	66	77	+	75	71
Chicago Heights	Dixie Hwy. & 10 St.	63	63	56	+	74	66	59
Cicero	15th St. & 50th Ave.	90	75	76	+	83	80	76
Des Plaines	1755 S. Wolf Rd.	61	54	58	59	73	67	56
Evanston	1454 Elmwood	41	38	39	+	+	47	51
Flossmoor	999 Kedzie Ave.	58	66	55	56	64	63	57
Franklin Park	3400 N. Rose St.	70	59	59	67	77	70	69
Harvey	157th & Lexington	79	75	67	70	79	76	70
Hillside	Wolf Rd. & Harrison	68	66	57	55	66	61	61
Lyons	4043 Joliet Ave.	-	-	-	-	-	-	72
McCook	50th St. & Glencoe	104	101	110	87	75	+	+
Midlothian	15202 Crawford Ave.	62	59	49	54	68	63	59
Morton Grove	9111 Waukegan	+	54	58	61	78	70	60
Niles	8955 Greenwood Ave.	68	56	56	58	67	71	60
Oak Park	834 Lake St.	53	-	53	48	64	63	56
Orland Park	133rd & LaGrange Rd.	65	69	52	56	65	58	+
Palatine	1000 Quentin Rd.	51	57	49	47	54	53	54
River Forest	Lathrop & Oak	67	59	55	57	68	68	64
Summit	60th St. & 74th Ave.	89	86	78	80	93	87	73
Wilmette	9th St. & Central Ave.	48	42	43	45	55	51	49
Winnetka	1112 Willow Rd.	38	42	39	41	51	47	+
Chicago:								
Addams Elem. Sch.	10810 S. Ave. "H"	105	131	118	108	107	94	86
Anthony Elem. Sch.	9800 S. Torrence	86	90	88	88	96	96	84
Calumet H.S.	8131 S. May St.	69	73	69	68	68	62	64
Carver H.S.	801 E. 133rd Pl.	73	91	83	85	92	96	75
Chicago Ave. Pump. Sta.	805 N. Michigan Ave.	-	-	-	-	-	-	91
Chicago Vocational H.S.	2100 E. 87th St.	76	79	75	77	79	87	69
Cooley Vocational H.S.	1450 Larrabee	-	-	-	-	-	82	71
Farr Dormitory	3300 S. Michigan Ave.	-	-	-	-	-	-	76
Fenger Jr. College	11220 S. Wallace	80	80	72	71	79	69	+
Hale Elem. Sch.	6140 S. Melvina	68	88	88	75	77	80	72
Lakeview H.S.	4015 N. Ashland	70	72	66	63	67	69	59
Logan Square	2940 W. Cortland	72	66	73	72	74	74	65
South Water Filt. Plt.	3300 E. Cheltenham Pl.	67	67	78	61	73	73	66
Sullivan H.S.	6631 N. Bosworth Ave.	57	58	53	60	56	60	55
Washington H.S.	3500 E. 114th St.	148	175	170	121	129	119	111
DU PAGE COUNTY								
Addison	130 W. Army Trail Rd.	68	53	54	58	60	57	56
Bensenville	Main & York	93	109	88	+	+	76	69
Darien	1410 75th St.	-	-	-	69	60	51	51
Elmhurst	118 Schiller	69	69	71	66	64	64	58
Glen Ellyn	494 Pennsylvania St.	-	-	-	-	-	-	47
Naperville	175 Jackson St.	68	58	58	53	62	54	58
West Chicago	128 W. McConnell Ave.	70	59	56	49	53	56	52
Wheaton	201 Reber St.	+	58	59	53	59	52	53
KANE COUNTY								
Aurora	770 N. Michels	-	-	-	-	-	-	52
Elgin	150 Dexter	-	-	-	-	-	57	55
KANKAKEE COUNTY								
Bradley	610 E. Liberty	+	+	70	70	64	67	76

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

STATION	ADDRESS	ANNUAL MEAN (UG/M^3)						
		1975	1976	1977	1978	1979	1980	1981
LAKE COUNTY								
Lake Bluff	121 E. Sheridan Pl.	42	43	40	41	44	43	39
Waukegan	106 Utica	65	58	62	57	56	+	+
Waukegan	Golf & Jackson	-	+	46	44	50	50	42
MC HENRY COUNTY								
Cary	First & Three Oaks Rd.	+	+	41	38	46	46	46
WILL COUNTY								
Braidwood	Sewage Plant	-	-	-	-	+	61	60
Joliet	Midland & Campbell Sts.	71	72	+	75	77	77	67
Joliet	1425 N. Broadway	78	+	+	71	71	71	69
Joliet	1216 Houbolt St.	53	75	43	+	58	56	55
Joliet	501 Ella Ave.	79	82	80	68	63	66	53
Lockport	5th & Madison	70	68	63	53	69	64	56
Monee	432 E. Main St.	48	64	56	+	+	56	+
Rockdale	Volunteer Fire Dept.	97	104	87	+	97	79	75
Romeoville	Naperville Rd.	65	80	58	+	59	51	49

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SULFUR DIOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NUMBER OF SAMPLES				HIGHEST SAMPLES (PPM)				ANNUAL STATISTICS	
		1 HR	24 HR	3-HR AVGS >.5	24-HR AVGS >.14	3-HR. AVG. 1st	3-HR. AVG. 2nd	24-HR. AVG. 1st	24-HR. AVG. 2nd	ARITH. MEAN	STD. GEO. DEVIATION
COOK COUNTY											
Calumet City	868 Marquette	8416		0	0	.135	.101	.063	.044	.011	2.83
Chicago Heights	Dixie Hwy & 10th St.	8288		0	0	.144	.102	.064	.053	.009	2.63
Lyons	4043 Joliet Ave.	7741		0	0	.153	.110	.088	.049	.010	3.59
North Riverside	2350 DesPlaines Ave.	8066		0	0	.115	.097	.080	.044	.009	2.91
Skokie	9800 Lawler	8210		0	0	.106	.095	.081	.062	.009	2.80
Chicago:											
Logan Square	3228 W. Palmer	6168		0	0	.094	.094	.073	.065	+	
Northwestern University	Huron & Fairbanks	8164		0	0	.135	.129	.071	.068	.010	2.94
Southeast Police Station	103rd & Luella	5688		0	0	.139	.119	.101	.064	+	
State Office Building	160 N. LaSalle	8255		0	0	.109	.108	.065	.061	.011	2.90
DU PAGE COUNTY											
Glen Ellyn	308 Wilson	8101		0	0	.097	.082	.060	.046	.006	2.95
KANE COUNTY											
Elgin	665 Dundee Rd.	8197		0	0	.053	.040	.024	.019	.004	2.52
LAKE COUNTY											
Waukegan	Golf & Jackson	7977		0	0	.076	.061	.043	.043	.006	2.93
WILL COUNTY											
Joliet	Joliet & Benton	8043		0	0	.149	.108	.046	.037	.007	3.10

+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SHORT-TERM TRENDS FOR SULFUR DIOXIDE

STATION	ADDRESS	ANNUAL MEAN (PPM)						
		1975	1976	1977	1978	1979	1980	1
COOK COUNTY								
Calumet City	868 Marquette	-	-	-	-	.018	.014	.
Chicago Heights	Dixie Hwy & 10th St.	+	.02	.02	01	.009	.012	.
Lyons	4043 Joliet Ave.	-	-	-	-	-	-	.
North Riverside	2350 DesPlaines Ave.	-	-	-	-	+	.011	.
Skokie	9800 Lawler	+	.02	.01	.01	.009	.015	.
Chicago:								
Logan Square	3228 W. Palmer	-	-	-	-	-	-	
Northwestern University	Huron & Fairbanks	-	-	-	018	.019	.015	.
Southeast Police Station	103rd & Luella	-	-	-	-	-	-	
State Office Building	160 N. LaSalle	-	-	-	+	.022	.016	.
DU PAGE COUNTY								
Glen Ellyn	308 Wilson	-	-	-	-	-	-	.
KANE COUNTY								
Elgin	665 Dundee Rd.	-	-	-	-	-	-	.
LAKE COUNTY								
Waukegan	Golf & Jackson	-	.011	.012	.007	.009	.006	.
WILL COUNTY								
Joliet	Joliet & Benton	.016	.009	.008	.009	.012	.010	.

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
OZONE
(PARTS PER MILLION)

STATION	ADDRESS	NO. OF SAMPLES		HIGHEST SAMPLES (PPM)									
		TOTAL	>.08 PPM	DAYS > 12	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	ANNUAL 1st	ANNUAL 2nd
COOK COUNTY													
Arlington Heights	1211 New Wilke	6173	50	1	.077	.078	.087	.173	.102	.071	.041	.173	.105
Calumet City	868 Marquette	8224	9	0	.074	.076	.078	.111	.083	.078	.051	.111	.083
Chicago Heights	Dixie Hwy & 10th St.	8016	20	0	.086	.083	.086	.086	.102	.078	.051	.102	.086
Evanston	531 Lincoln	7733	83	2	.062	.080	.110	.129	.151	104	.052	.151	.129
North Riverside	2350 DesPlaines	8523	29	1	.078	.080	.093	.153	.099	081	.052	.153	.103
Skokie	9800 Lawler	8035	72	3	.072	.069	.110	.144	.097	079	.054	.144	.142
Chicago:													
Lincoln Park Zoo	2200 N. Cannon	5842	21	0	.054	.071	.080	.114	.093	.078	.046	.114	.104
Museum Sci. & Ind.	57th & Museum	2915	47	1	NS	NS	.115	.131	.113	.055	.052	.131	.118
Roseland	351 W. 104th St.	5422	37	2	.061	.074	.081	.167	.097	.063	NS	.167	.129
Stevenson El. Sch.	8010 S. Kostner	7651	22	1	.063	.062	.069	.139	.099	.056	.047	.139	.106
Taft H.S.	6545 W. Hurlbut	8077	59	2	.049	.076	.084	.176	.099	.069	.041	.176	141
DU PAGE COUNTY													
Glen Ellyn	308 Wilson	6566	34	0	.064	.076	.083	.113	.110	.077	.054	.113	.110
KANE COUNTY													
Elgin	665 Dundee	8156	26	1	.081	.073	.073	.138	.098	.067	.055	.138	.102
KANKAKEE COUNTY													
Bourbonnais	Olivet Nazarene Col.	7007	5	0	.065	.065	.073	.092	.061	.088	.061	.092	.088
LAKE COUNTY													
Deerfield	1321 Wilmot	8431	61	2	.062	.073	.102	.161	.113	.069	.045	.161	.141
Libertyville	1441 Lake	7712	45	2	.065	.074	.091	.163	.100	.068	.046	.163	.138
Waukegan	Golf & Jackson	8218	82	4	.060	.072	.093	.133	.172	.068	.047	.172	.133
MC HENRY COUNTY													
Cary	First St. & 3 Oaks	7888	50	1	.089	.080	.096	.164	.112	.071	.062	.164	.112
WILL COUNTY													
Braidwood	Sewage Plant	6670	41	0	.082	.083	.083	.118	.091	.088	.067	.118	.108
South Lockport	1911 S. Lawrence	7099	28	0	.073	.083	.067	.110	.106	.065	.057	.110	.106

NS - No samples
Numbers shown in parenthesis denote the number of samples exceeding .08 ppm in a given month.

1981
NITROGEN DIOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NO. OF SAMPLES		HIGHEST				ANNUAL STATISTICS	
				1-HOUR		24-HOUR			
		1 HR	24 HR	1st	2nd	1st	2nd	ARITH. MEAN	STD. GI DEVIATI
COOK COUNTY									
Alsip	4500 W. 123rd St.		59	NA	NA	.081	.077	.047	1.41
Blue Island	12700 Sacramento		58	NA	NA	.088	.087	.049	1.53
Cicero	15th St. & 50th Ave.		54	NA	NA	.086	.082	.050	1.36
Des Plaines	1755 S. Wolf Rd.		59	NA	NA	.088	.080	.047	1.48
Flossmoor	999 Kedzie Ave.		55	NA	NA	.082	.075	.037	1.55
Harvey	157th & Lexington		55	NA	NA	.100	.077	.042	1.44
Hillside	Wolf Rd. & Harrison		59	NA	NA	.074	.073	.045	1.44
Morton Grove	9111 Waukegan		58	NA	NA	.109	.097	.048	1.48
North Riverside	2350 OesPlaines	2604		.104	.101	.052	.051	+	
Oak Park	834 Lake St.		60	NA	NA	.103	.086	.046	1.33
Summit	60th & 74th Ave.		57	NA	NA	.102	.088	.048	1.41
Wilmette	9th St. & Central Ave.		58	NA	NA	.088	.085	.043	1.54
Chicago:									
Addams Elem. Sch.	10810 S. Ave. "H"		60	NA	NA	.056	.054	.031	1.47
Cooley Vocational H.S.	1450 Larrabee		61	NA	NA	.063	.061	.037	1.47
Edgewater	5358 N. Ashland		61	NA	NA	.071	.068	.041	1.42
GSA Building	538 S. Clark		60	NA	NA	.070	.069	.044	1.34
Lincoln Park Zoo	2200 N. Cannon	3824		.274	.132	.066	.055	+	
Northwestern University	Huron & Fairbanks	7023		.208	.201	.071	.067	.032	1.81
South Water Filt. Plant	3300 E. Cheltenham		57	NA	NA	.069	.054	.029	1.79
State Office Building	160 N. LaSalle	8113		.195	.156	.086	.083	.038	1.62
Steinmetz H.S.	3030 N. Mobile		55	NA	NA	.062	.058	.035	1.42
Stevenson Elem. Sch.	8010 S. Kostner		58	NA	NA	.058	.055	.035	1.37
Taft H.S.	6545 W. Hurlbut		59	NA	NA	.069	.058	.035	1.48

SHORT-TERM TRENDS FOR NITROGEN DIOXIDE

STATION	ADDRESS	ANNUAL MEAN (PPM)						
		1975	1976	1977	1978	1979	1980	19
COOK COUNTY								
Alsip	4500 W. 123rd St.	-	-	-	-	-	.048	.04
Blue Island	12700 Sacramento	.037	.036	.039	.050	.067	.047	.04
Cicero	15th St. & 50th Ave.	.040	.041	.046	+	.078	.060	.05
Des Plaines	1755 S. Wolf Rd.	.036	.036	.040	.052	.069	.054	.04
Flossmoor	999 Kedzie	+	.031	.035	.045	.059	.045	.03
Harvey	157th & Lexington	.038	.036	.041	.052	.059	.047	.04
Hillside	Wolf Rd. & Harrison	.037	.037	.041	.053	.067	.050	.04
Morton Grove	9111 Waukegan	-	+	.044	.056	.062	.051	.04
North Riverside	2350 Des Plaines	-	-	-	-	+	+	+
Oak Park	834 Lake St.	.041	-	.045	.058	.067	.053	.04
Summit	60th & 74th Ave.	.039	.039	.043	.054	.067	.050	.04
Wilmette	9th St. & Central Ave.	.029	.028	.036	.045	.061	.045	.04
Chicago:								
Addams Elem. Sch.	10810 S. Ave. "H"	.031	.034	.038	.037	.045	.036	.03
Cooley Vocational H.S.	1450 Larrabee	-	-	-	-	-	.045	.03
Edgewater	5358 N. Ashland	-	.038	.041	.047	.053	.052	.04
GSA Building	538 S. Clark	.044	.044	.050	.055	.058	.053	.04
Lincoln Park Zoo	2200 N. Cannon	-	-	-	-	-	-	+
Northwestern University	Huron & Fairbanks	-	-	-	+	.035	+	.03
South Water Filt. Plant	3300 E. Cheltenham	.026	.027	.029	.029	+	.028	.02
State Office Building	160 N. LaSalle	-	-	+	+	.040	+	.03
Steinmetz H.S.	3030 N. Mobile	.035	.035	.039	.043	.049	.039	.03
Stevenson Elem. Sch.	8010 S. Kostner	.034	.034	.032	.037	.050	.040	.03
Taft H.S.	6545 W. Hurlbut	.036	.038	.037	.041	.051	.043	.03

NA - Not applicable.
- Station not in operation during year shown.
+ Did not meet minumum statistical selection criteria (See Section 4.1).

1981
CARBON MONOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NO OF SAMPLES	NUMBER OF AVERAGES		HIGHEST					
			1 - HR > 35 PPM	8 - HR > 9 PPM	1-HR AVERAGE			8-HR AVERAGE		
					1st	2nd	3rd	1st	2nd	3rd
COOK COUNTY										
Calumet City	868 Marquette	8237	0	0	9.9	8.8	8.5	6.9	6.6	6.5
Chicago Heights	Dixie Hwy. & 10th St.	8106	0	0	12.0	11.9	11.0	9.0	7.6	5.1
North Riverside	2350 Des Plaines Ave.	7949	0	0	13.3	13.2	12.5	8.6	7.4	7.1
Skokie	9800 Lawler	8507	0	0	11.9	9.6	9.0	8.1	5.6	5.3
Chicago:										
Logan Square	3228 W. Palmer	6762	0	2	22.5	14.7	13.0	10.3	9.6	7.0
State Office Bldg.	160 N. LaSalle	7616	0	3	20.8	16.5	16.4	10.6	9.6	9.6
WILL COUNTY										
Joliet	71 N. Ottawa	4278	0	1	18.7	18.2	12.5	9.5	7.3	6.2
Joliet	Ottawa & Washington	3147	0	0	9.6	9.5	9.3	7.0	6.6	6.4

NON - METHANE HYDROCARBONS
(PARTS PER MILLION)

STATION	ADDRESS	NO OF AVERAGES		HIGHEST AVERAGES (PPM) (6 - 9 am)											
		TOTAL 6-9am	>.24 6-9am	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
COOK COUNTY															
Chicago:															
Northwestern Univ.	Huron & Fairbanks	62	47	NS	NS	NS	NS	NS	NS	1.0	1.3	1.0	0.3	NS	NS
State Office Bldg.	160 N. LaSalle	64	58	NS	NS	NS	NS	NS	NS	1.8	1.7	2.0	0.4	NS	NS

NS - No sample.

1981
LEAD

(MICROGRAMS PER CUBIC METER)

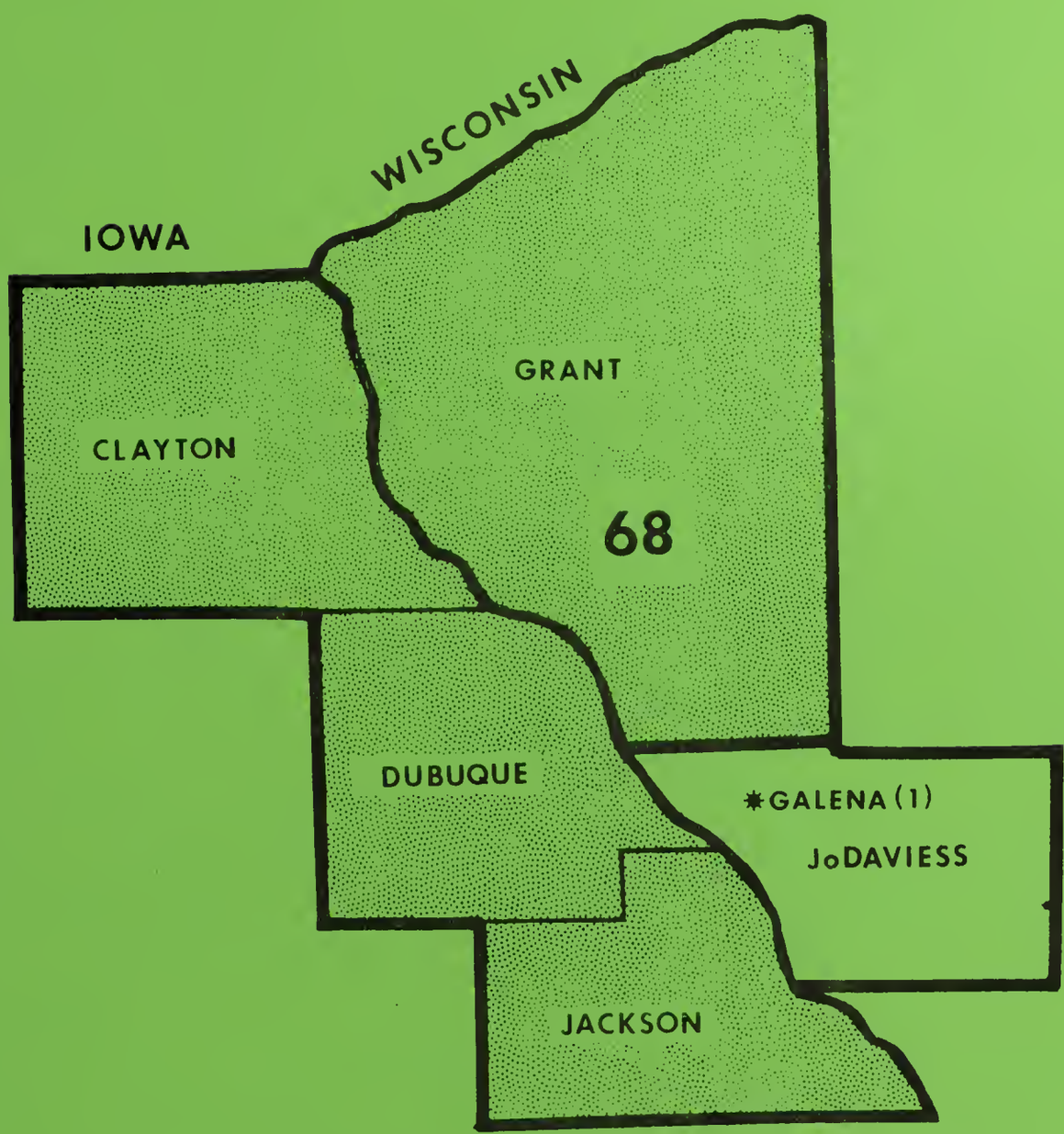
STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m3	QUARTERLY AVERAGES (ug/m3)				ANNUAL MEAN (ug/m3)
			1st	2nd	3rd	4th	
COOK COUNTY							
Alsip	4500 W. 123rd St.	0	0.21	0.26	0.20	0.29	0.24
Arlington Heights	33 S. Arlington Hts. Rd.	0	0.26	0.34	0.31	0.43	0.34
Bedford Park	6535 S. Central	0	0.32	0.21	0.26	0.39	0.30
Blue Island	12700 Sacramento	0	0.41	0.36	0.43	0.43	0.41
Calumet City	755 Pulaski Rd.	0	0.28	0.33	0.37	0.40	0.34
Chicago Heights	Dixie Hwy. & 10th St.	0	0.20	0.20	0.28	0.30	0.25
Cicero	15th St. & 50th Ave.	0	0.47	0.36	0.44	0.48	0.44
Des Plaines	1755 S. Wolf Rd.	0	0.24	0.26	0.27	0.36	0.28
Evanston	1454 Elmwood	0	0.34	0.25	0.34	0.36	0.32
Flossmoor	999 Kedzie	0	0.19	0.23	0.26	0.31	0.25
Franklin Park	3400 N. Rose St.	0	0.24	0.31	0.40	0.41	0.34
Harvey	157th & Lexington	0	0.29	0.30	0.31	0.45	0.34
Hillside	Wolf Rd. & Harrison	0	0.31	0.28	0.37	0.43	0.35
Lyons	4043 Joliet Ave.	0	0.34	0.39	0.34	0.42	0.37
McCook	50th St. & Glencoe	0	+	0.24	+	+	+
Midlothian	15202 Crawford Ave.	0	0.22	0.19	0.25	0.29	0.24
Morton Grove	9111 Waukegan Rd.	0	0.27	0.27	0.27	0.44	0.31
Niles	8955 Greenwood Ave.	0	0.29	0.38	0.39	0.50	0.39
Oak Park	834 Lake St.	0	0.26	0.27	0.28	0.30	0.28
Orland Park	133rd & LaGrange Rd.	0	0.25	0.22	0.26	+	+
Palatine	1000 Quentin Rd.	0	0.19	0.30	0.29	0.34	0.28
River Forest	Lathrop & Oak	0	0.32	0.35	0.35	0.42	0.36
Summit	60th & 74th Ave.	0	0.36	0.27	0.44	0.36	0.36
Wilmette	9th St. & Central Ave.	0	0.16	0.23	0.29	0.27	0.24
Winnetka	1112 Willow Rd.	0	0.15	0.16	0.19	+	+
Chicago:							
Addams Elem. Sch.	10810 S. Ave. "H"	0	0.29	0.30	0.34	0.39	0.33
Anthony Elem. Sch.	9800 S. Torrence	0	0.32	0.34	0.41	0.49	0.40
Calumet H.S.	8131 S. May St.	0	0.24	0.31	0.31	0.33	0.30
Carver H.S.	801 E. 133rd Pl.	0	0.19	0.23	0.24	0.32	0.25
Chicago Ave. Pump. Sta.	805 N. Michigan Ave.	0	0.34	0.42	0.44	0.46	0.42
Chicago Vocational H.S.	2100 E. 87th St.	0	0.39	0.33	0.29	0.28	0.32
Cooley Vocational H.S.	1450 Larrabee	0	0.29	0.36	0.35	0.24	0.33
Farr Dormitory	3300 S. Michigan Ave.	0	0.25	0.27	0.37	0.32	0.35
Fenger Jr. College	11220 S. Wallace	0	0.25	0.27	0.28	+	0.26
Hale Elem. Sch.	6140 S. Melvina	0	0.28	0.24	0.31	0.41	0.31
Lakeview H.S.	4015 N. Ashland	0	0.21	0.36	0.36	0.38	0.33
Logan Square	2940 W. Cortland	0	0.29	0.33	0.40	0.42	0.36
South Water Filt. Plant	3300 E. Cheltenham Pl.	0	0.23	0.34	0.31	0.33	0.30
Sullivan H.S.	6631 N. Bosworth Ave.	0	0.16	0.27	0.26	0.27	0.24
Washington H.S.	3500 E. 114th St.	0	0.89	0.49	0.39	0.44	0.55
DU PAGE COUNTY							
Addison	130 W. Army Trail Rd.	0	0.22	0.21	0.31	0.43	0.29
Bensenville	Main & York	0	0.27	0.25	0.30	0.42	0.31
Darien	1410 75th St.	0	0.13	0.15	0.20	0.27	0.19
Elmhurst	118 Schiller	0	0.23	0.24	0.29	0.41	0.29
Glen Ellyn	494 Pennsylvania St.	0	0.17	0.17	0.20	0.33	0.22
Naperville	175 Jackson St.	0	0.17	0.18	0.22	0.37	0.24
West Chicago	128 W. McConnell Ave.	0	0.13	0.15	0.17	0.26	0.18
Wheaton	201 Reber St.	0	0.15	0.16	0.21	0.25	0.19
KANE COUNTY							
Aurora	770 N. Michels	0	0.16	0.16	0.18	0.27	0.19
Elgin	150 Dexter	0	0.26	0.84	0.82	0.40	0.58
KANKAKEE COUNTY							
Bradley	610 E. Liberty	0	0.14	0.13	0.12	+	0.14

1981
LEAD

(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m3	QUARTERLY AVERAGES (ug/m3)				ANNUAL MEAN (ug/m3)
			1st	2nd	3rd	4th	
LAKE COUNTY							
Lake Bluff	121 E. Sheridan Pl.	0	0.06	0.13	0.13	0.14	0.11
Waukegan	106 Utica	0	0.14	0.18	0.19	+	+
Waukegan	Golf & Jackson	0	0.15	0.14	0.23	0.22	0.18
MC HENRY COUNTY							
Cary	First & Three Oaks Rd.	0	0.08	0.13	0.12	0.19	0.13
WILL COUNTY							
Braidwood	Sewage Plant	0	0.06	0.09	0.08	0.11	0.09
Joliet	Midland & Campbell Sts.	0	0.15	0.16	0.20	0.22	0.18
Joliet	1425 N. Broadway	0	0.14	0.24	0.21	0.26	0.22
Joliet	1216 Houbolt St.	0	0.10	0.11	0.12	0.20	0.14
Joliet	501 Ella Ave.	0	0.10	0.16	0.16	0.17	0.15
Lockport	5th & Madison	0	0.12	0.16	0.18	0.24	0.18
Monee	432 E. Main St.	0	0.12	0.13	0.15	+	0.12
Rockdale	Volunteer Fire Dept.	0	0.17	0.14	0.18	0.23	0.18
Romeoville	Naperville Rd.	0	0.11	0.14	0.18	0.23	0.16

AIR QUALITY CONTROL REGION 68
METROPOLITAN DUBUQUE INTERSTATE
(IOWA-ILLINOIS-WISCONSIN)



Data for the Iowa, Wisconsin portion of this control region can be obtained from:

Iowa Department of
Environmental Quality,
Henry A. Wallace Bldg.
900 E. Grand Avenue
Des Moines, Iowa 50319
(515) 281-8692

Wisconsin Department of
Natural Resources,
Bureau of Air Pollution Control,
Box 450,
Madison, Wisconsin 53701
(608) 266-7718

(The number of sampling sites in each city is shown in parenthesis following the city name.)

Total Suspended Particulates

The only site in the Illinois portion of this AQCR was Galena and it did not record sufficient data for a valid annual average. The maximum 24-hour average of 130 ug/m^3 is below the 24-hour secondary standard of 150 ug/m^3.

Lead

The highest quarterly average at Galena was 0.34 ug/m^3 well below the quarterly standard of 1.5 ug/m^3.

Sulfur Dioxide, Ozone, Nitrogen Dioxide, Carbon Monoxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the Illinois portion of this AQCR.

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
JO DAVIESS COUNTY										
Galena	S. Commerce St.	50	0	0	130	104	101	89	+	

SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

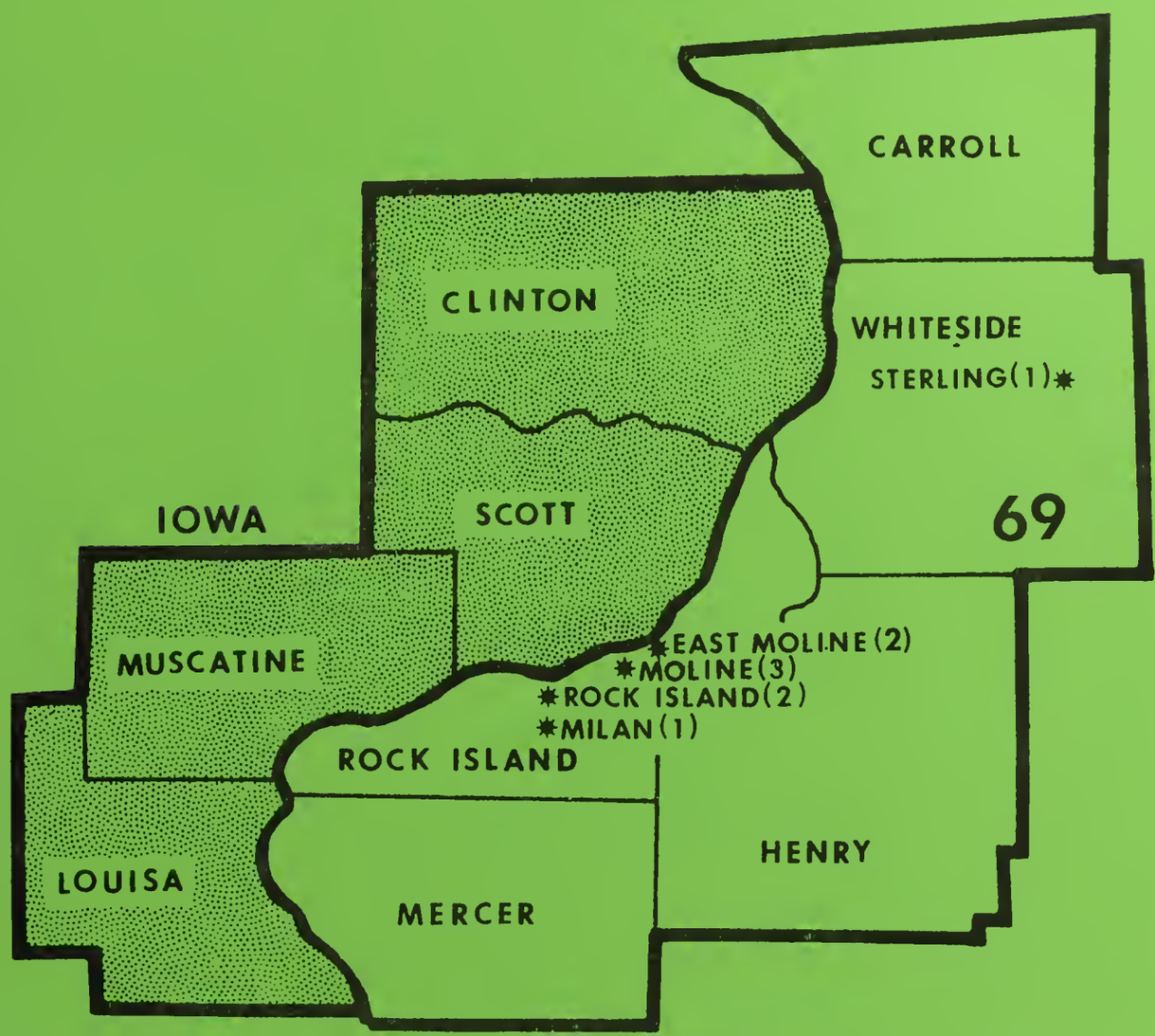
STATION	ADDRESS	ANNUAL MEAN (UG/M3)						
		1975	1976	1977	1978	1979	1980	1981
JO DAVIESS COUNTY								
Galena	S. Commerce St.	70	70	68	67	+	+	+

LEAD
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m3	QUARTERLY AVERAGES (ug/m3)				ANNUAL MEAN (ug/m3)
			1st	2nd	3rd	4th	
JO DAVIESS COUNTY							
Galena	S. Commerce St.	0	0.21	0.15	0.34	+	0.27

+ Did not meet minimum statistical selection criteria (See Section 4.1).

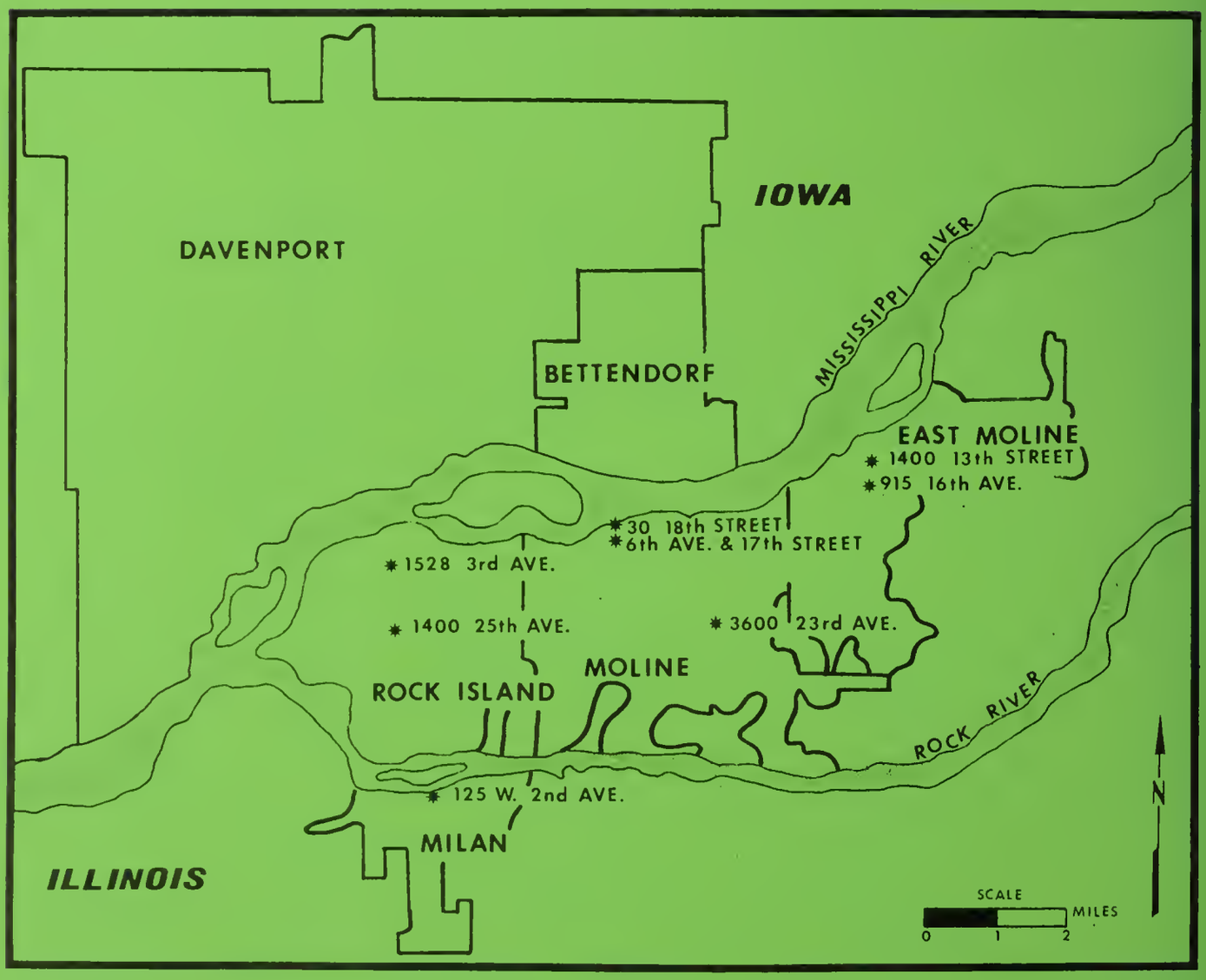
AIR QUALITY CONTROL REGION 69
METROPOLITAN QUAD CITIES INTERSTATE
(ILLINOIS-IOWA)



Data for the Iowa portion of this control region can be obtained from:
Iowa Department of Environmental Quality,
Henry A. Wallace Building
900 E. Grand Ave.
Des Moines, Iowa 50319
(515) 281-8692

(The number of sampling sites in each city is shown in parenthesis following the city name.

METROPOLITAN QUAD CITIES



Total Suspended Particulates

Four of six sites in the Illinois portion of this AQCR had valid annual averages. Milan was the only site above the primary annual standard of 75 ug/m^3 with a value of 83 ug/m^3. None of the sites recorded any 24-hour samples in excess of the 24-hour primary standard of 260 ug/m^3 with the highest 24-hour average of 190 ug/m^3 being recorded at Milan.

Lead

No lead violations were recorded in the Illinois portion of this AQCR. The highest quarterly average was 0.30 ug/m^3 recorded at Milan.

Sulfur Dioxide

The only site in the Illinois portion of this AQCR that monitored for SO_2 in 1981 was located in Moline. This site recorded an annual average of 0.005 ppm, well below the primary annual standard of 0.03 ppm. There were no excursions of the 3-hour secondary standard of 0.5 ppm or the 24-hour primary standard of 0.14 ppm. The highest 3-hour average was 0.095 ppm and the highest 24-hour average was 0.051 ppm.

Ozone

Two sites monitored for ozone in the Illinois portion of this AQCR during the 1981 ozone season. Neither site recorded any days with ozone concentration greater than 0.12 ppm. The maximum hourly value was 0.105 ppm recorded in Cordova. Cordova also recorded 45 hours with ozone concentrations above 0.08 ppm.

Carbon Monoxide

Moline was the only site in the Illinois portion of this AQCR. The highest 1-hour average was 16.1 ppm, substantially less than the 1-hour primary standard of 35 ppm. The high 8-hour average of 7.7 ppm was below the primary 8-hour standard of 9 ppm.

Nitrogen Dioxide, Non-Methane Hydrocarbon

Data for these pollutants not collected in the Illinois portion of this AQCR.

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
ROCK ISLAND COUNTY										
East Moline	915 16th Ave.	45	1	0	163	138	136	127	+	
East Moline	1400 13th St.	54	0	0	126	116	115	108	64	1.4
Milan	125 W. 2nd Ave.	50	2	0	190	167	131	130	83	1.4
Moline	3600 23rd Ave.	52	0	0	88	86	85	83	53	1.3
Rock Island	1528 3rd Ave.	54	2	0	175	156	133	129	69	1.6
Rock Island	1400 25th Ave.	32	1	0	183	105	101	98	+	

SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

STATION	ADDRESS	ANNUAL MEAN (UG/M3)						
		1975	1976	1977	1978	1979	1980	1981
ROCK ISLAND COUNTY								
East Moline	915 16th Ave.	82	79	79	81	90	86	+
East Moline	1400 13th St.	-	-	-	-	65	65	64
Milan	125 W. 2nd Ave.	90	90	86	87	91	96	83
Moline	3600 23rd Ave.	52	54	53	52	61	65	53
Rock Island	1528 3rd Ave.	68	70	74	71	72	67	69
Rock Island	1400 25th Ave.	61	61	58	52	59	57	+

SULFUR DIOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NUMBER OF SAMPLES				HIGHEST SAMPLES (PPM)				ANNUAL STATISTICS	
		1 HR	24 HR	3-HR AVGS >.5	24-HR AVGS >.14	3-HR. AVG. 1st	3-HR. AVG. 2nd	24-HR. AVG. 1st	24-HR. AVG. 2nd	ARITH. MEAN	STD. GEO. DEVIATION
ROCK ISLAND COUNTY											
Moline	30 18th St.	7817		0	0	.095	.092	.051	.044	.005	2.82

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SHORT-TERM TRENDS FOR SULFUR DIOXIDE

STATION	ADDRESS	ANNUAL MEAN (PPM)						
		1975	1976	1977	1978	1979	1980	19
ROCK ISLAND COUNTY								
Moline	30 18th St.	-	-	-	.008	.009	.007	.0

OZONE
(PARTS PER MILLION)

STATION	ADDRESS	NO. OF SAMPLES		HIGHEST SAMPLES (PPM)									
		TOTAL	>.08 PPM	DAYS >.12	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	ANNUAL 1st	ANNUAL 2nd
ROCK ISLAND COUNTY													
Cordova	Post Office	4605	45	0	.101	.072	.089	.105	.091	.072	.049	.105	.101
Moline	30 18th St.	8504	12	0	.081	.085	.075	.093	.083	.080	.053	.093	.091

CARBON MONOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NO OF SAMPLES	NUMBER OF AVERAGES		HIGHEST					
			1 - HR >35 PPM	8 - HR >9 PPM	1-HR AVERAGE			8-HR AVERAG		
					1st	2nd	3rd	1st	2nd	3
ROCK ISLAND COUNTY										
Moline	30 18th St.	8375	0	0	16.1	12.6	12.0	7.7	7.7	7

- Station not in operation during year shown.

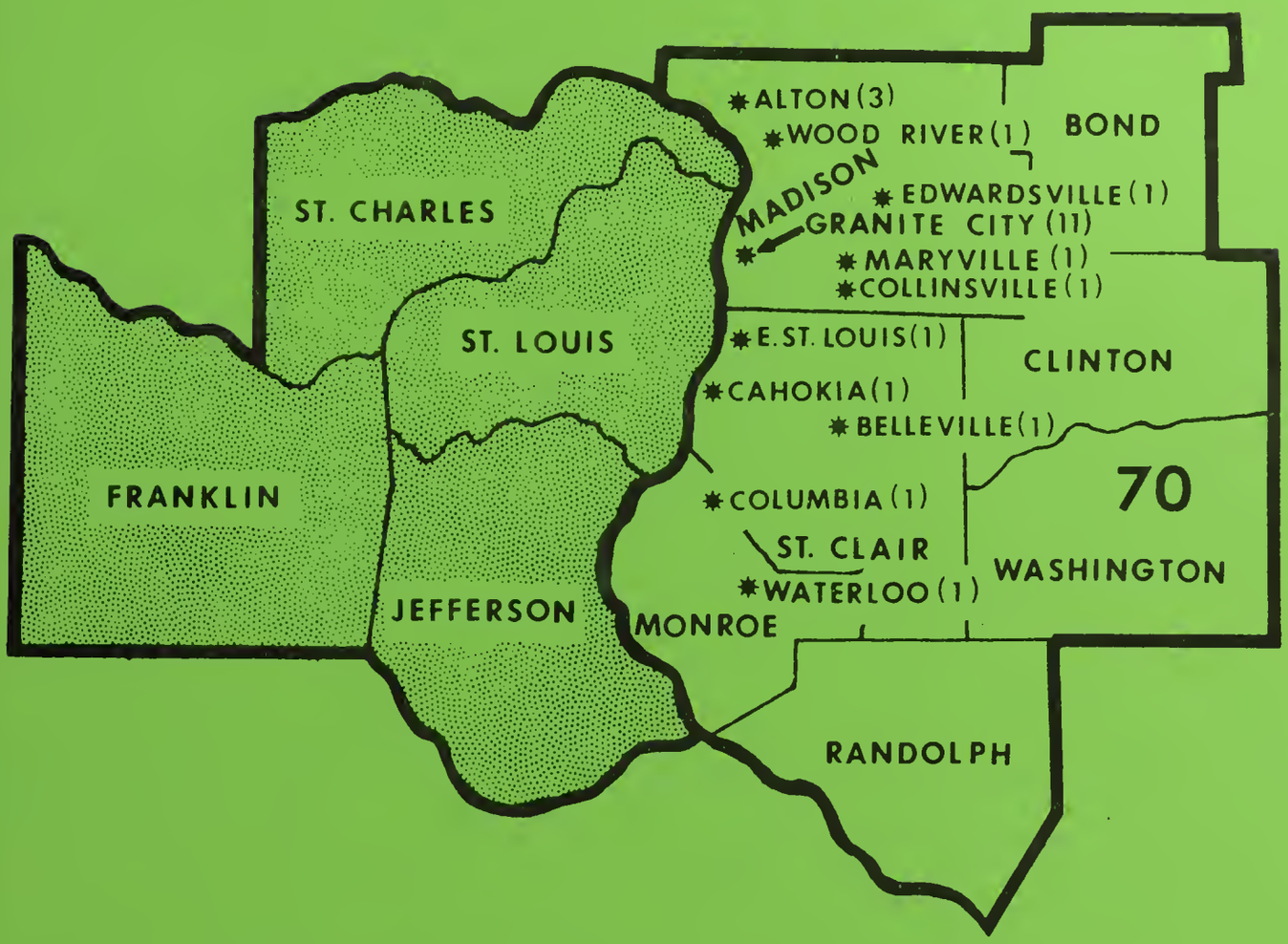
1981
LEAD

(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m3	QUARTERLY AVERAGES (ug/m3)				ANNUAL MEAN (ug/m3)
			1st	2nd	3rd	4th	
ROCK ISLAND COUNTY							
East Moline	915 16th Ave.	0	0.25	0.19	0.19	+	0.21
East Moline	1400 13th St.	0	0.15	0.10	0.14	0.20	0.15
Milan	125 W. 2nd Ave.	0	0.24	0.15	0.30	0.29	0.24
Moline	3600 23rd Ave.	0	0.15	0.10	0.11	+	0.12
Rock Island	1528 3rd Ave.	0	0.17	0.15	0.21	0.28	0.20
Rock Island	1400 25th Ave.	0	0.11	+	0.15	+	+

+ Did not meet minimum statistical selection criteria (See Section 4.1).

AIR QUALITY CONTROL REGION 70
METROPOLITAN ST. LOUIS INTERSTATE
(ILLINOIS-MISSOURI)



Data for the Missouri portion of this control region can be obtained from:
Missouri Department of Natural Resources,
Division of Environmental Quality,
P.O. Box 176, 117 Commerce Drive,
Jefferson City, Missouri 65101
(314) 751-3241

(The number of sampling sites in each city is shown in parenthesis following the city name.)

METRO-EAST AREA

Total Suspended Particulates

A total of 16 sites had sufficient data for valid annual averages in the Illinois portion of this AQCR. Ten of these sites recorded annual averages above the annual primary standard of 75 ug/m^3. All eight sites in Granite City remained above the annual standard in 1981; however, six of those sites showed some improvement over levels recorded in 1980. The two exceptions are Norfolk & Western and 2001 E. 20th. The 190 ug/m^3 annual mean at 2001 E. 20th is the highest in the State. All other sites in the AQCR showed an improvement over 1980. Figure 5 is a map of the Metro-East area listing the annual means.

Six sites recorded at least one excursion of the 24-hour primary standard of 260 ug/m^3 with three of these (all in Granite City) recording more than one excursion and as such are in violation of the standard. The site at 2001 E. 20th in Granite City recorded the most excursions with 13 out of 60 total samples (22%). The first and second highest 24-hour values in the State were also recorded in Granite City at Norfolk & Western with values of 889 ug/m^3 and 534 ug/m^3.

Lead

Two sites in the Illinois portion of this AQCR, both in Granite City, recorded violations of the quarterly standard of 1.5 ug/m^3. The site at 15th and Madison exceeded the standard three of the four quarters with the highest average being 7.27 ug/m^3 in the 4th quarter. This same site exceeded the standard for two quarters in 1980. The site at 20th and Adams exceeded the standard for one quarter in 1981.

Sulfur Dioxide

All six sites in the Illinois portion of this AQCR collected sufficient data for valid annual averages. All sites were below the primary annual standard of 0.03 ppm with East St. Louis recording the highest annual average of 0.021 ppm. Figure 6 is a map of the Metro-East area listing the annual means.

East St. Louis is the only site to record an excursion of the 24-hour primary standard of 0.14 ppm with a value of 0.146 ppm. No excursion of the 3-hour secondary standard of 0.5 ppm were recorded in the Illinois portion of this AQCR. East St. Louis recorded the highest 3-hour average of 0.425 ppm.

Ozone

Only three of the seven sites operating in the Illinois portion of this AQCR recorded excursions of the 0.12 ppm Federal standard. This is a substantial change from 1980 when all sites recorded excursions with a total of 45 in the region compared to three in 1981. The number of hours above 0.08 ppm was also less at all sites in 1981. The greatest number

of hours above 0.08 ppm was recorded at Edwardsville with 92 in 1981, substantially less than the 310 recorded in 1980. The highest hourly value in the Illinois portion of this AQCR was 0.128 ppm recorded at Waterloo. Ozone levels in 1981 were well below those observed in 1980 in the Metro-East area, with less days above 0.12 ppm, less hours above 0.08 ppm and lower peak values.

Carbon Monoxide

Of the three sites operating in the Illinois portion of this AQCR Granite City is the only one to record an excursion of the 8-hour primary standard of 9 ppm with a value of 10.6 ppm. No excursions of the 1-hour primary standard of 35 ppm were recorded in 1981. The highet 1-hour value was 19.9 ppm recorded at Granite City.

Nitrogen Dioxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the Illinois portion of this AQCR.

ST. LOUIS METRO-EAST

TOTAL SUSPENDED PARTICULATES
ANNUAL GEOMETRIC MEAN
(MICROGRAMS PER CUBIC METER)

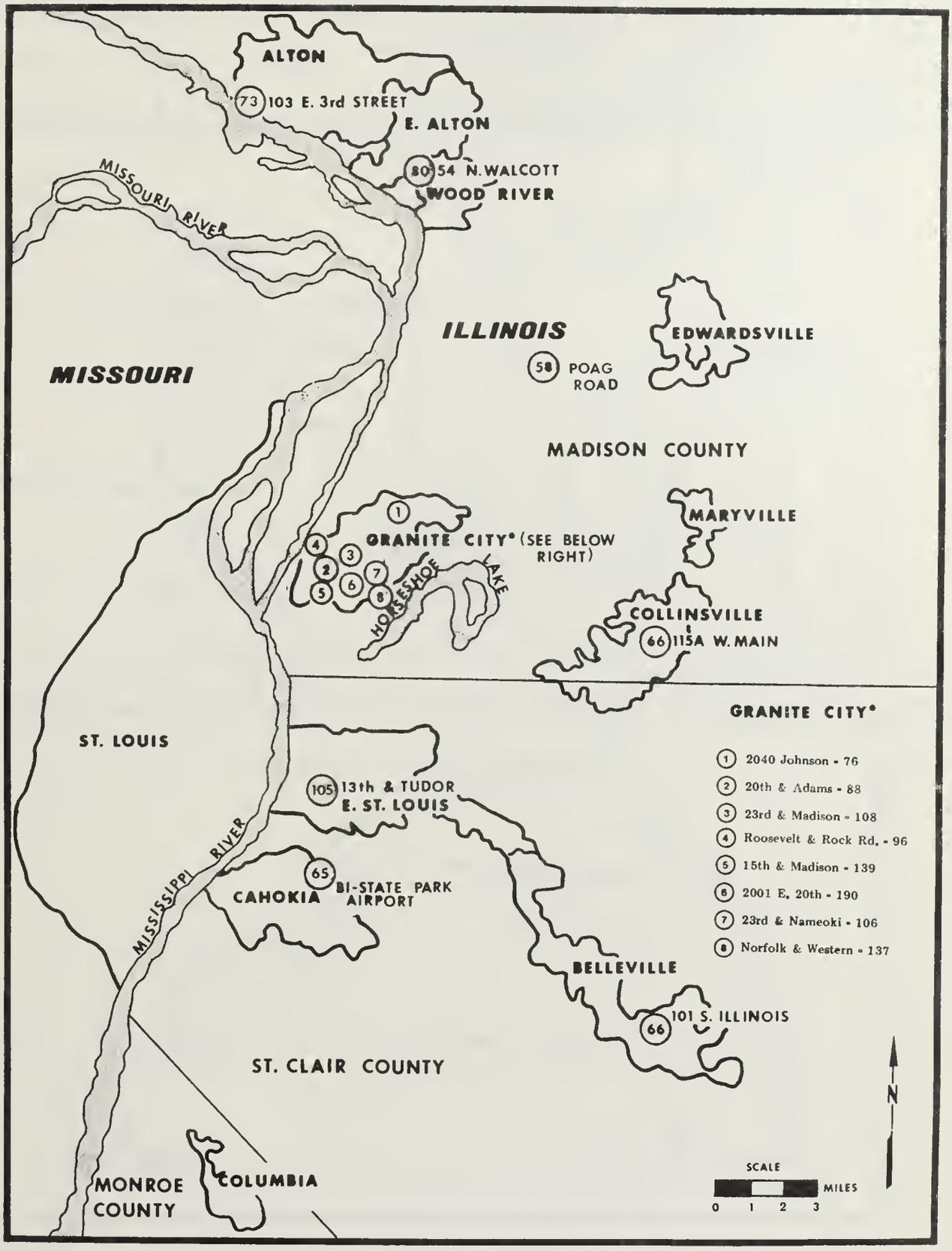


FIGURE 5

ST. LOUIS METRO-EAST
SULFUR DIOXIDE
ANNUAL ARITHMETIC MEAN
(PARTS PER MILLION)

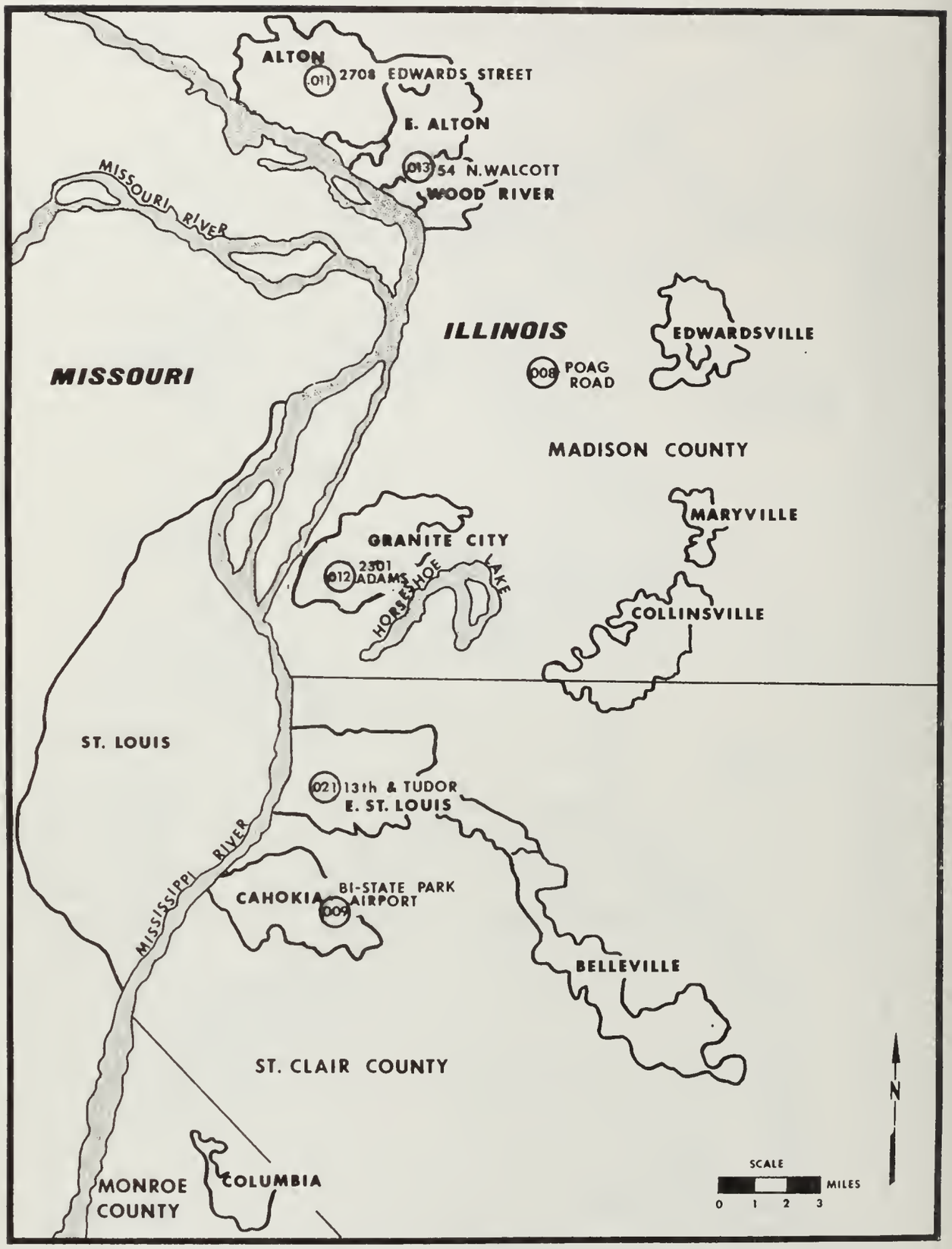


FIGURE 6

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
MADISON COUNTY										
Alton	103 E. 3rd St.	58	2	0	172	157	144	125	73	1.6
Collinsville	115A W. Main	58	1	0	221	123	101	98	66	1.4
Edwardsville	Poag Rd.	53	0	0	137	125	112	95	58	1.5
Granite City	23rd & Madison	61	12	0	251	215	205	204	108	1.5
Granite City	3201 E. 23rd	19	1	0	161	133	131	104	+	
Granite City	2001 E. 20th	60	46	13	391	341	334	329	190	1.5
Granite City	15th & Madison	61	26	3	357	298	261	241	139	1.5
Granite City	Roosevelt & Rock Rd.	58	9	0	231	173	172	166	96	1.5
Granite City	Norfolk & Western	46	17	4	889	534	369	356	137	1.8
Granite City	2040 Johnson Ave.	59	1	1	265	145	125	121	76	1.4
Granite City	23rd & Nameoki	56	11	1	288	219	201	176	106	1.5
Granite City	20th & Adams	55	5	0	244	191	177	167	88	1.5
Wood River	54 N. Walcott	54	3	1	314	191	185	146	80	1.6
MONROE COUNTY										
Columbia	208 S. Rapp	37	1	0	184	149	84	81	+	
Waterloo	U.S.D.A. Building	61	1	0	200	108	98	94	56	1.5
ST. CLAIR COUNTY										
Belleville	101 S. Illinois	61	1	0	180	110	100	100	66	1.4
Cahokia	1201 St. Clement	60	1	0	215	122	109	105	65	1.5
East St. Louis	13th & Tudor	60	10	0	237	231	207	197	105	1.5

+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

STATION	ADDRESS	ANNUAL MEAN (UG/M³)						
		1975	1976	1977	1978	1979	1980	198
MADISON COUNTY								
Alton	103 E. 3rd St.	78	84	78	76	82	83	73
Collinsville	115A W. Main	68	76	75	74	73	70	66
Edwardsville	Poag Rd.	-	-	-	-	60	60	58
Granite City	23rd & Madison	105	123	112	114	118	113	108
Granite City	3201 E. 23rd	68	83	81	74	87	84	+
Granite City	2001 E. 20th	158	205	186	176	215	170	190
Granite City	15th & Madison	138	155	131	152	159	145	139
Granite City	Roosevelt & Rock Rd.	97	111	107	99	120	112	96
Granite City	Norfolk & Western	+	139	133	+	165	126	137
Granite City	2040 Johnson Ave.	-	+	84	86	88	81	76
Granite City	23rd & Nameoki	-	-	112	115	119	112	106
Granite City	20th & Adams	-	-	+	+	115	104	88
Wood River	54 N. Walcott	81	82	95	85	91	91	80
MONROE COUNTY								
Columbia	208 S. Rapp	47	65	72	+	+	66	+
Waterloo	U.S.D.A. Building	-	-	-	-	+	64	56
ST. CLAIR COUNTY								
Belleville	101 S. Illinois	63	77	+	72	68	77	66
Cahokia	1201 St. Clement	-	-	-	-	66	71	65
East St. Louis	13th & Tudor	-	-	-	-	120	108	105

SULFUR DIOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NUMBER OF SAMPLES				HIGHEST SAMPLES (PPM)				ANNUAL STATISTICS	
		1 HR	24 HR	3-HR AVGS >.5	24-HR AVGS >.14	3-HR. AVG. 1st	3-HR. AVG. 2nd	24-HR. AVG. 1st	24-HR. AVG. 2nd	ARITH. MEAN	STD. GEO DEVIATIO
MADISON COUNTY											
Alton	2708 Edwards	8164		0	0	.164	.137	.064	.060	.011	3.39
Edwardsville	Poag Road	8044		0	0	.089	.082	.046	.039	.008	3.03
Granite City	2301 Adams	7139		0	0	.137	.106	.042	.042	.012	3.02
Wood River	54 N. Walcott	7979		0	0	.217	.215	.122	.088	.013	3.54
ST. CLAIR COUNTY											
Cahokia	1201 St. Clement	7439		0	0	.170	.112	.059	.047	.009	3.16
East St. Louis	13th & Tudor	8138		0	1	.425	.357	.146	.129	.021	3.49

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SHORT-TERM TRENDS FOR SULFUR DIOXIDE

STATION	ADDRESS	ANNUAL MEAN (PPM)						
		1975	1976	1977	1978	1979	1980	1981
MADISON COUNTY								
Alton	2708 Edwards	-	-	.019	.017	.015	.015	.011
Edwardsville	Poag Rd.	-	-	-	-	.014	.011	.008
Granite City	2301 Adams	.020	.020	.023	.018	.015	+	.012
Wood River	54 N. Walcott	.032	.028	.025	.023	.020	.014	.013
ST. CLAIR COUNTY								
Cahokia	1201 St. Clement	-	-	-	-	.010	.011	.009
East St. Louis	13th & Tudor	-	-	-	-	.022	.024	.021

OZONE
(PARTS PER MILLION)

STATION	ADDRESS	NO. OF SAMPLES		HIGHEST SAMPLES (PPM)									
		TOTAL	>.08 PPM	DAYS >.12	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	ANNUAL 1st	ANNUAL 2nd
MADISON COUNTY													
Alton	2708 Edwards	6651	63	1	.082	.124	.098	.107	.115	.127	.052	.127	.124
Edwardsville	Poag Rd.	6554	92	0	.091	.086	.104	.105	.106	.113	.065	.113	.106
Granite City	2301 Adams	7879	17	0	.056	.072	.094	.089	.115	.069	.048	.115	.094
Maryville	Rte. 159 South	6279	75	0	.086	.087	.103	.123	.117	.087	.057	.123	.117
Wood River	54 N. Walcott	8275	73	1	.058	.110	.094	.117	.122	.126	.052	.126	.122
MONROE COUNTY													
Waterloo	U.S.D.A. Building	5974	27	1	.072	.099	.070	.128	.094	.080	.068	.128	.099
ST. CLAIR COUNTY													
East St. Louis	13th & Tudor	6405	26	0	.072	.072	.082	.105	.090	.073	.055	.105	.103

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
CARBON MONOXIDE
(PARTS PER MILLION)

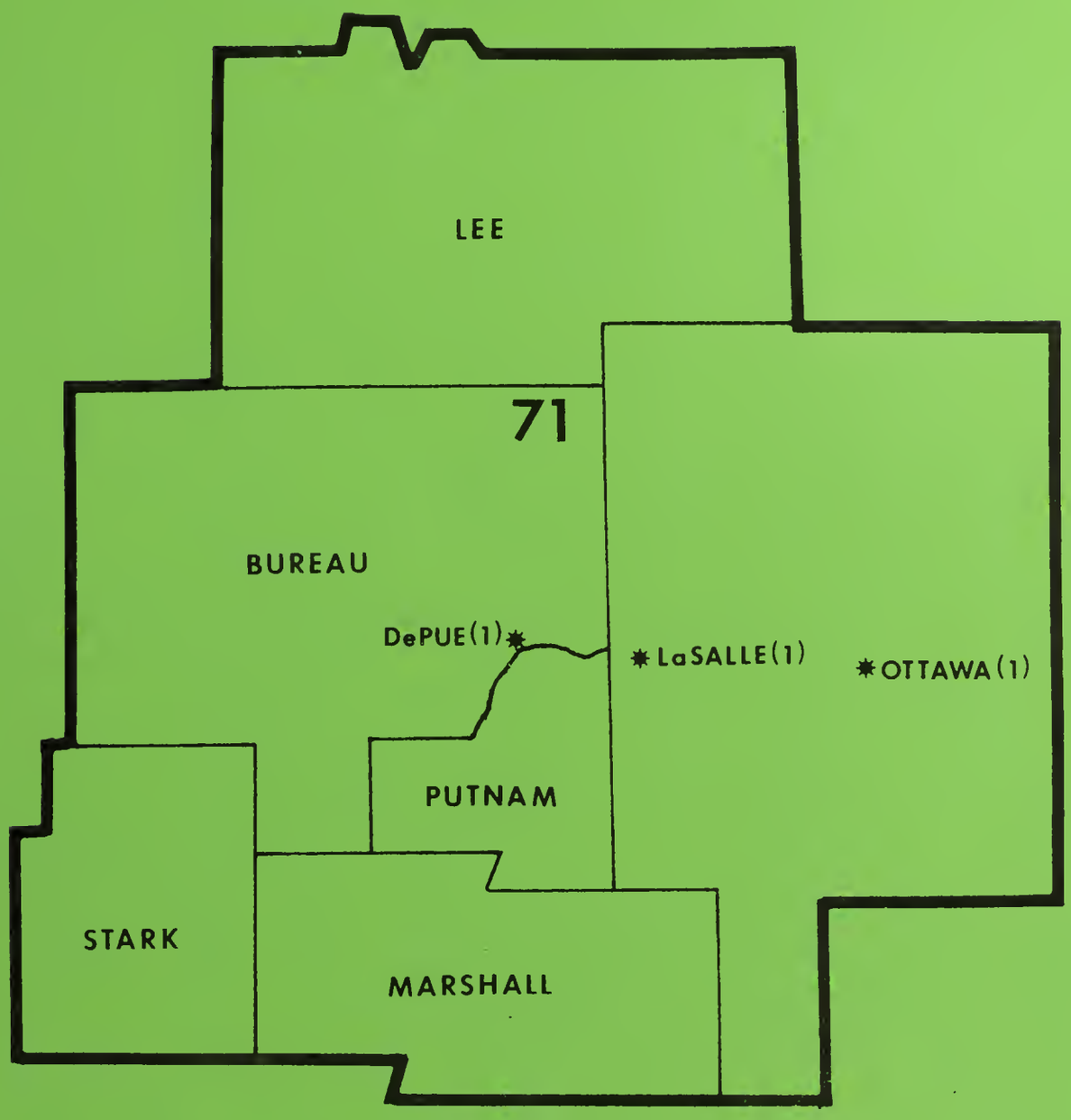
STATION	ADDRESS	NO OF SAMPLES	NUMBER OF AVERAGES		HIGHEST					
			1 - HR > 35 PPM	8 - HR > 9 PPM	1-HR AVERAGE			8-HR AVERA		
					1st	2nd	3rd	1st	2nd	3
MADISON COUNTY										
Alton	1854 E. Broadway	5882	0	0	10.5	10.5	9.9	6.7	6.6	5
Granite City	2001 Edison	7876	0	1	19.9	16.4	15.5	10.6	8.2	6
ST. CLAIR COUNTY										
East St. Louis	13th & Tudor	8088	0	0	13.1	12.9	10.9	8.1	6.5	2

LEAD
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m3	QUARTERLY AVERAGES (ug/m3)				ANNUAL MEAN (ug/m3)
			1st	2nd	3rd	4th	
MADISON COUNTY							
Alton	103 E. 3rd St.	0	0.21	0.32	0.46	0.36	0.35
Collinsville	115A W. Main	0	0.26	0.18	0.24	0.26	0.23
Edwardsville	Poag Rd.	0	0.22	0.15	0.23	0.26	0.21
Granite City	23rd & Madison	0	0.43	0.31	0.56	0.42	0.43
Granite City	3201 E. 23rd	0	+	+	0.33	+	+
Granite City	2001 E. 20th	0	0.48	0.46	0.58	0.55	0.51
Granite City	15th & Madison	3	2.07	1.03	1.77	7.27	3.03
Granite City	Roosevelt & Rock Rd.	0	0.47	0.85	1.13	0.87	0.83
Granite City	Norfolk & Western	0	0.26	0.21	0.35	0.39	0.31
Granite City	2040 Johnson Ave.	0	0.41	0.25	0.32	0.39	0.34
Granite City	23rd & Nameoki	0	0.56	0.33	0.46	0.53	0.47
Granite City	20th & Adams	1	0.45	1.58	0.54	0.52	0.68
Wood River	54 N. Walcott	0	0.30	0.33	0.38	0.37	0.34
MONROE COUNTY							
Columbia	208 S. Rapp	0	0.24	+	0.21	+	+
Waterloo	U.S.D.A. Building	0	0.16	0.08	0.14	0.10	0.12
ST. CLAIR COUNTY							
Belleville	101 S. Illinois	0	0.25	0.15	0.23	0.35	0.25
Cahokia	1201 St. Clement	0	0.24	0.12	0.24	0.28	0.22
East St. Louis	13th & Tudor	0	0.50	0.47	0.54	0.62	0.53

+ Did not meet minimum statistical selection criteria (See Section 4.1).

AIR QUALITY CONTROL REGION 71
NORTH CENTRAL ILLINOIS INTRASTATE



(The number of sampling sites in each city is shown in parenthesis following the city name.)

NORTH CENTRAL ILLINOIS INTRASTATE
AIR QUALITY CONTROL REGION (AQCR) 71

Total Suspended Particulates

Three sites recorded valid annual averages in this AQCR in 1981. No excursions of the annual primary standard of 75 ug/m^3 were recorded with the highest annual average of 63 ug/m^3 being recorded at Oglesby. No excursions of the 24-hour primary standard of 260 ug/m^3 were recorded and only two excursions of the 24-hour secondary standard of 150 ug/m^3 were recorded. The highest 24-hour value was 192 ug/m^3 recorded at Oglesby.

Lead

Both sites reporting lead data were well below the quarterly standard of 1.5 ug/m^3. The highest quarterly average was 0.13 ug/m^3, recorded at both sites in the 4th quarter.

Sulfur Dioxide

LaSalle recorded an annual mean of 0.004 ppm, well below the primary annual standard of 0.03 ppm. The maximum 3-hour and 24-hour averages were .072 ppm and .028 ppm respectively, also well below the appropriate standards. Data collected at industrial monitoring sites is given in Section 6.0.

Ozone

LaSalle was the only site outside of the Chicago metrppolitan area to record more than one day above 0.12 ppm. The ozone levels on the two excursion days was heavily impacted by winds blowing from the direction of the Chicago urbanized area. The highest hourly value was 0.128 ppm. A total of 31 hours were recorded with ozone concentrations greater than 0.08 ppm, less than the 52 hours above in 1980.

Nitrogen Dioxide, Carbon Monoxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in this AQCR.

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
BUREAU COUNTY										
DePue	1401 Marquette	55	1	0	182	144	103	97	56	1.5
LA SALLE COUNTY										
Oglesby	110 W. 2nd St.	54	1	0	192	149	135	133	63	1.6
Ottawa	211 E. Main	58	0	0	114	100	96	92	54	1.4

SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

STATION	ADDRESS	ANNUAL MEAN (UG/M3)						
		1975	1976	1977	1978	1979	1980	1981
BUREAU COUNTY								
DePue	1401 Marquette	58	63	58	58	60	59	56
LA SALLE COUNTY								
Oglesby	110 W. 2nd St.	-	-	+	59	60	53	63
Ottawa	211 E. Main	55	64	54	58	64	55	54

SULFUR DIOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NUMBER OF SAMPLES				HIGHEST SAMPLES (PPM)				ANNUAL STATISTICS	
		1 HR	24 HR	3-HR AVGS >.5	24-HR AVGS >.14	3-HR. AVG. 1st	3-HR. AVG. 2nd	24-HR. AVG. 1st	24-HR. AVG. 2nd	ARITH. MEAN	STD. GEO. DEVIATION
LA SALLE COUNTY											
LaSalle	541 Chartres	8232	.	0	0	.072	.064	.028	.026	.004	2.55

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SHORT-TERM TRENDS FOR SULFUR DIOXIDE

STATION	ADDRESS	ANNUAL MEAN (PPM)						
		1975	1976	1977	1978	1979	1980	19
LASALLE COUNTY								
LaSalle	541 Chartres	.014	.010	.009	.007	.006	.005	.0

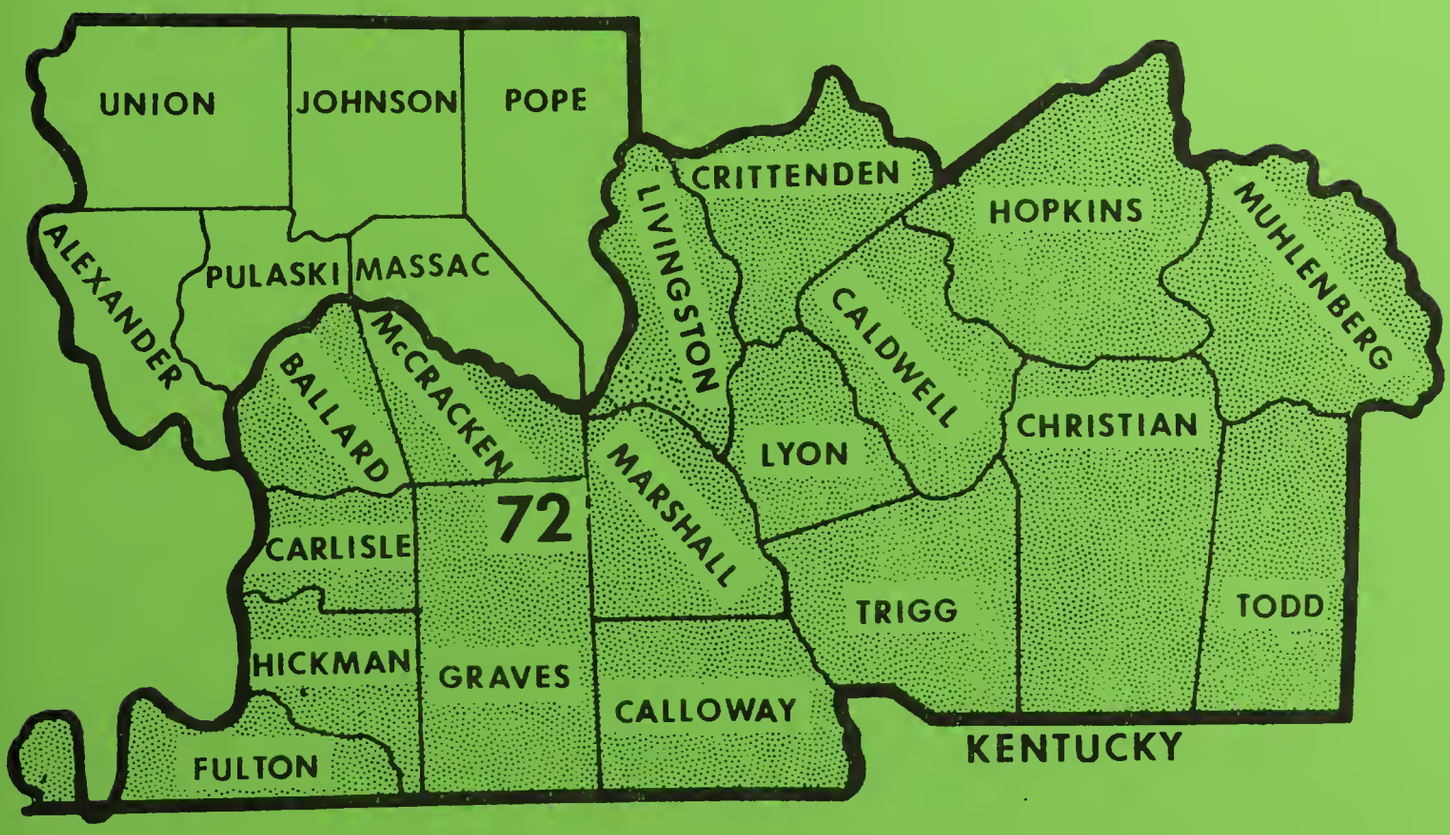
OZONE
(PARTS PER MILLION)

STATION	ADDRESS	NO. OF SAMPLES		HIGHEST SAMPLES (PPM)									
		TOTAL	>.08 PPM	DAYS >.12	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	ANNUAL 1st	ANNUAL 2nd
LA SALLE COUNTY													
LaSalle	541 Chartres	7492	31	2	.072	.082	.090	.085	.128	.081	.052	.128	.127

LEAD
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m^3	QUARTERLY AVERAGES (ug/m^3)				ANNUAL MEAN (ug/m^3)
			1st	2nd	3rd	4th	
BUREAU COUNTY							
DePue	1401 Marquette	0	0.09	0.09	0.11	0.13	0.11
LA SALLE COUNTY							
Ottawa	211 E. Main	0	0.08	0.07	0.12	0.13	0.10

AIR QUALITY CONTROL REGION 72
PADUCAH-CAIRO INTERSTATE
(KENTUCKY-ILLINOIS)



Data for the Kentucky portion of this control region can be obtained from:
Kentucky Environmental Protection Agency,
Capitol Plaza Tower,
Frankfort, Kentucky 40601
(502) 564-3382

(The number of sampling sites in each city is shown in parenthesis following the city name.)

PADUCAH-CAIRO INTERSTATE (KENTUCKY-ILLINOIS)
AIR QUALITY CONTROL REGION (AQCR) 72

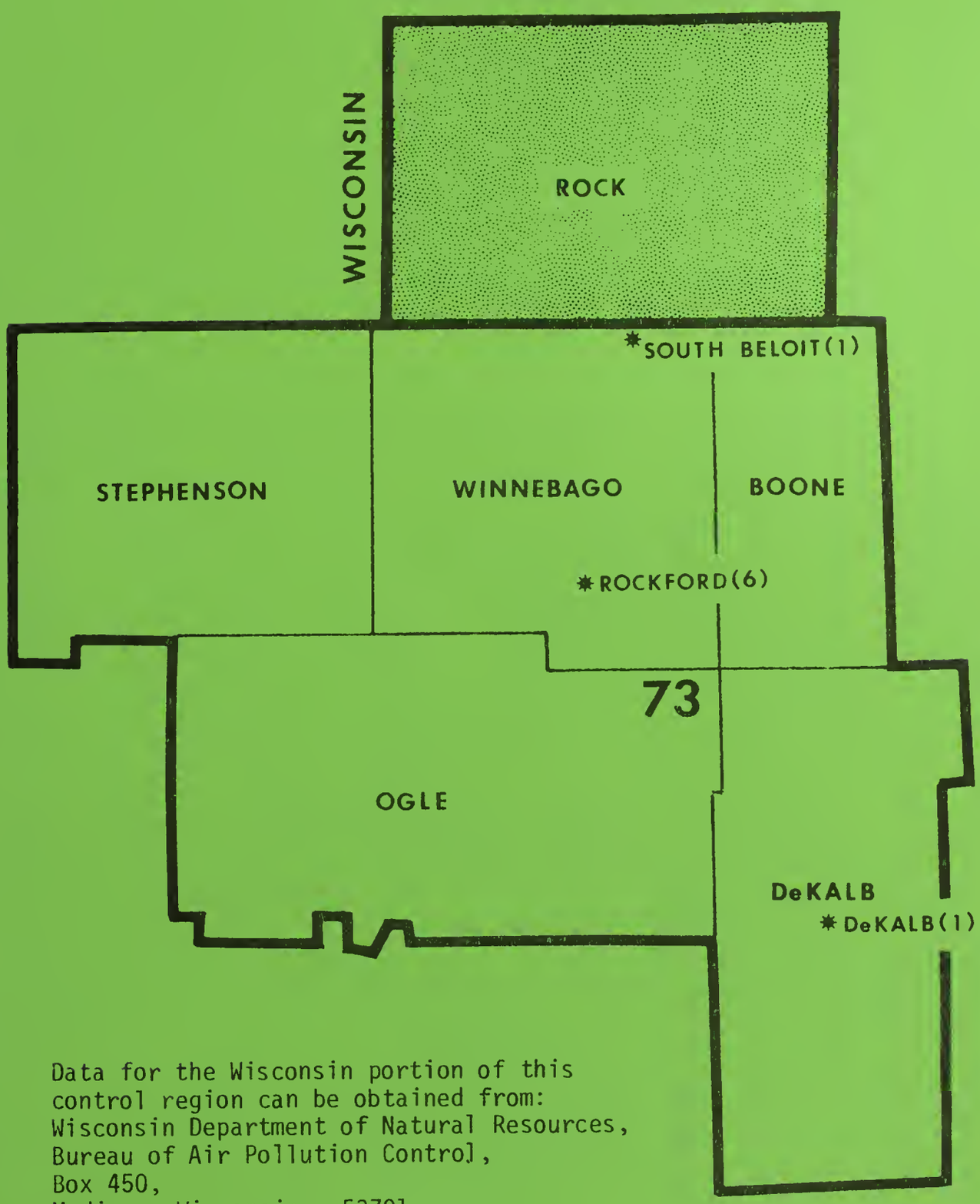
tal Suspended Particulates, Sulfur Dioxide

ta for these pollutants collected at industrial sites (see Section 6.0).

one, Nitrogen Dioxide, Carbon Monoxide, Non-Methane Hydrocarbons

ta for these pollutants not collected in the Illinois portion of this
CR.

AIR QUALITY CONTROL REGION 73
ROCKFORD-JANESVILLE-BELOIT INTERSTATE
(ILLINOIS-WISCONSIN)



Data for the Wisconsin portion of this control region can be obtained from:
Wisconsin Department of Natural Resources,
Bureau of Air Pollution Control,
Box 450,
Madison, Wisconsin 53701
(608) 266-7718

(The number of sampling sites in each city is shown in parenthesis following the city name.)

ROCKFORD-JANESVILLE-BELOIT INTERSTATE (ILLINOIS-WISCONSIN)
AIR QUALITY CONTROL REGION (AQCR) 73

Total Suspended Particulates

Three sites in the Illinois portion of this AQCR received sufficient data for valid annual averages. All of these sites recorded annual averages below the annual secondary standard of 60 ug/m^3. The highest annual average was 57 ug/m^3 in South Beloit. This site was the only one to record an excursion of the 24-hour secondary standard of 150 ug/m^3 with a value of 169 ug/m^3.

Lead

All of the sites in the Illinois portion of this AQCR were well below the quarterly standard of 1.5 ug/m^3. The highest quarterly average of 0.27 ug/m^3 was recorded in Rockford at 333 15th Street.

Sulfur Dioxide

The site in Rockford recorded an annual average of 0.004 ppm, well below the annual primary standard of 0.03 ppm. The highest 3-hour average was 0.060 ppm and the highest 24-hour average was 0.033 ppm. These values are both well below the appropriate standards.

Ozone

Two sites monitored for ozone in the Illinois portion at this AQCR with neither recording concentrations above 0.12 ppm. Both sites recorded nine or more hours above 0.08 ppm. The highest hourly average was 0.094 ppm recorded at 1405 Maple in Rockford.

Carbon Monoxide

The Rockford site recorded one excursion of the 8-hour primary standard of 9 ppm with a maximum value of 9.5 ppm. The maximum 1-hour average was 21.0 ppm, below the 1-hour standard of 35 ppm.

Nitrogen Dioxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the Illinois portion of this AQCR.

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
DE KALB COUNTY										
DeKalb	650 N. 1st St.	54	0	0	129	125	109	98	53	[illegible].5
WINNEBAGO COUNTY										
Rockford	204 S. First	44	0	0	101	93	85	80	+	
Rockford	333 15th St.	52	0	0	133	112	104	98	52	1.6
South Beloit	Wheeler Ave. at Washington	54	1	0	169	134	105	95	57	1.5

SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

STATION	ADDRESS	ANNUAL MEAN (UG/M3)						
		1975	1976	1977	1978	1979	1980	1981
DE KALB COUNTY								
DeKalb	650 N. 1st St.	-	-	-	-	+	+	53
WINNEBAGO COUNTY								
Rockford	204 S. First	-	-	-	-	-	+	+
Rockford	333 15th St.	-	-	-	-	-	-	52
South Beloit	Wheeler Ave. at Washington	-	-	-	55	62	53	57

SULFUR DIOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NUMBER OF SAMPLES				HIGHEST SAMPLES (PPM)				ANNUAL STATISTICS	
		1 HR	24 HR	3-HR AVGS >.5	24-HR AVGS >.14	3-HR. AVG. 1st	3-HR. AVG. 2nd	24-HR. AVG. 1st	24-HR. AVG. 2nd	ARITH. MEAN	STD. GEO. DEVIATION
WINNEBAGO COUNTY											
Rockford	1528 18th Ave.	B266		0	0	.060	.045	.033	.025	.004	2.43

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SHORT-TERM TRENDS FOR SULFUR DIOXIDE

STATION	ADDRESS	ANNUAL MEAN (PPM)						
		1975	1976	1977	1978	1979	1980	1
WINNEBAGO COUNTY								
Rockford	1528 18th Ave.	.014	.017	.011	.009	+	.005	.

OZONE
(PARTS PER MILLION)

STATION	ADDRESS	NO. OF SAMPLES		HIGHEST SAMPLES (PPM)									
		TOTAL	>.08 PPM	DAYS >.12	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	ANNUAL 1st	ANNUAL 2nd
WINNEBAGO COUNTY													
Rockford	1500 Post	8126	12	0	.079	.068	.075	.086	.087	.063	.057	.087	.08
Rockford	1405 Maple	8230	9	0	.079	.072	.092	.094	.075	.075	.052	.094	.09

CARBON MONOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NO OF SAMPLES	NUMBER OF AVERAGES		HIGHEST					
			1 - HR >35 PPM	8 - HR >9 PPM	1-HR AVERAGE 1st	1-HR AVERAGE 2nd	1-HR AVERAGE 3rd	8-HR AVERAG 1st	8-HR AVERAG 2nd	8-HR AVERAG 3rd
WINNEBAGO COUNTY										
Rockford	425 E. State	8211	0	1	21.0	17.3	17.1	9.5	8.9	7

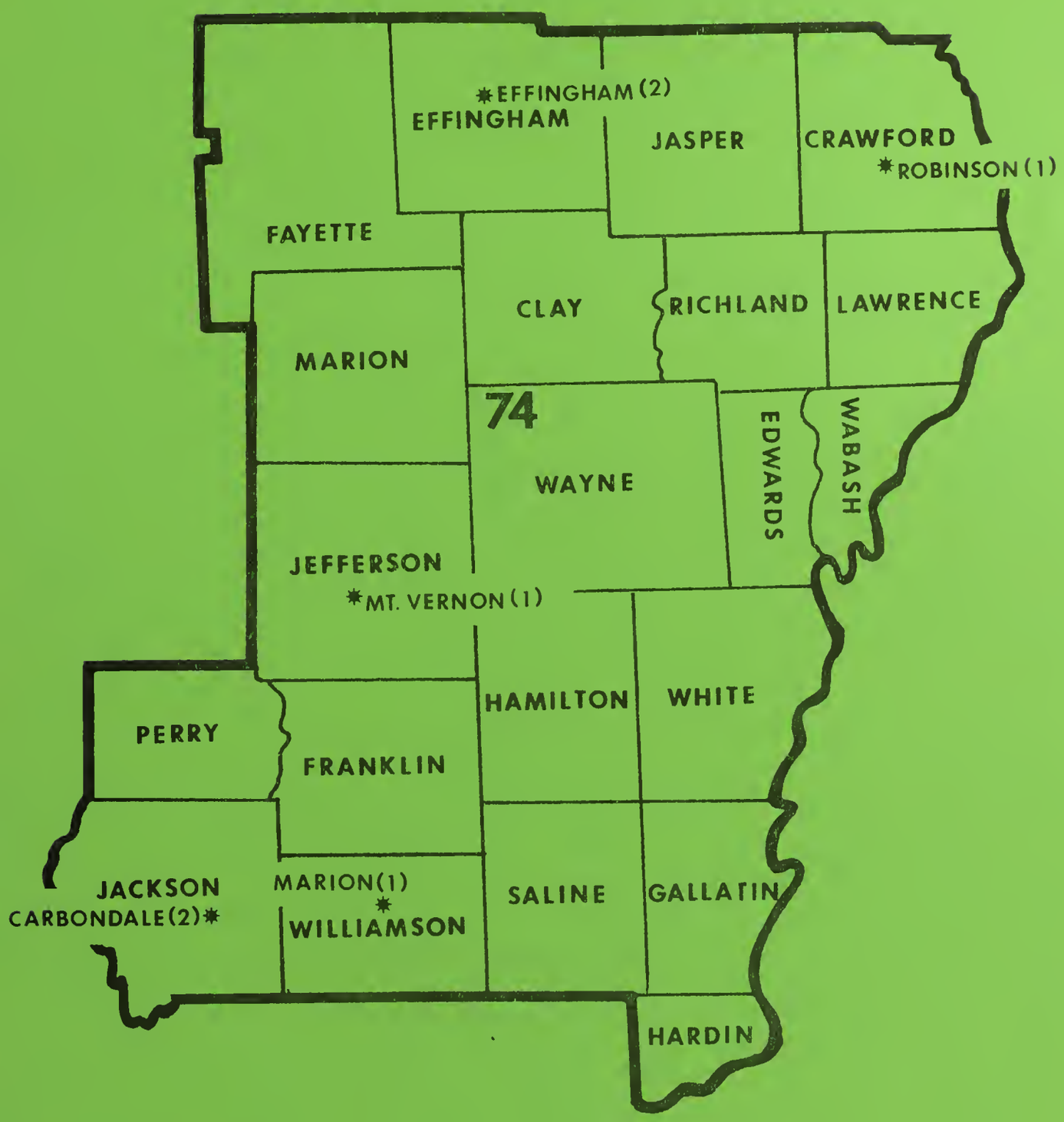
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
LEAD

(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m^3	QUARTERLY AVERAGES (ug/m3)				ANNUAL MEAN (ug/m3)
			1st	2nd	3rd	4th	
DE KALB COUNTY							
DeKalb	650 N. 1st St.	0	0.10	0.10	0.15	0.20	0.14
WINNEBAGO COUNTY							
Rockford	204 S. First	0	0.18	+	0.23	0.25	+
Rockford	333 15th St.	0	0.10	0.14	0.23	0.27	0.18
South Beloit	Wheeler Ave. at Washington	0	0.10	0.09	0.12	0.18	0.12

AIR QUALITY CONTROL REGION 74
SOUTHEAST ILLINOIS INTRASTATE



(The number of sampling sites in each city is shown in parenthesis following the city name.)

Total Suspended Particulates

Two of the four sites in this AQCR received sufficient data for valid annual averages. Neither site exceeded the annual primary standard of 75 ug/m^3. The highest annual average was 71 ug/m^3 at 306 W. Main Street in Carbondale. The only sample to exceed the 24-hour secondary standard of 150 ug/m^3 was 166 ug/m^3 recorded at 306 W. Main Street in Carbondale.

Lead

The highest quarterly average was 0.35 ug/m^3 recorded at 306 West Main Street in Carbondale. This value is well below the quarterly standard of 1.5 ug/m^3.

Sulfur Dioxide

Marion, the only site in this AQCR, recorded an annual average of 0.007 ppm well below the annual primary standard of 0.03 ppm. The highest 3-hour average was 0.092 ppm and the highest 24-hour average was 0.044, both well below the applicable standards.

Ozone

Three sites operated for at least a part of the 1981 ozone season. None of these sites recorded an hourly ozone concentration greater than 0.12 ppm. The highest hourly average was 0.102 ppm at Effingham. Effingham recorded the most hours above 0.08 ppm with 26.

Nitrogen Dioxide, Carbon Dioxide, Non-Methane Hydrocarbons

Data for these pollutants not collected in the AQCR.

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
EFFINGHAM COUNTY										
Effingham	1015 S. Willow	27	0	0	104	95	95	95	+	
JACKSON COUNTY										
Carbondale	306 W. Main St.	46	1	0	166	115	113	102	71	1.4
Carbondale	300 N. Springer	34	0	0	121	106	96	94	+	
JEFFERSON COUNTY										
Mt. Vernon	601 N. 18th St.	41	0	0	104	100	99	84	50	2.0

SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

STATION	ADDRESS	ANNUAL MEAN (UG/M3)						
		1975	1976	1977	1978	1979	1980	1981
EFFINGHAM COUNTY								
Effingham	1015 S. Willow	58	59	57	+	80	+	+
JACKSON COUNTY								
Carbondale	306 W. Main St.	-	-	77	+	+	77	71
Carbondale	300 N. Springer	-	-	-	-	-	-	+
JEFFERSON COUNTY								
Mt. Vernon	601 n. 18th St.	+	58	59	60	53	+	50

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SULFUR DIOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NUMBER OF SAMPLES				HIGHEST SAMPLES (PPM)				ANNUAL STATISTICS	
		1 HR	24 HR	3-HR AVGS >.5	24-HR AVGS >.14	3-HR. AVG. 1st	3-HR. AVG. 2nd	24-HR. AVG. 1st	24-HR. AVG. 2nd	ARITH. MEAN	STD. GEO DEVIATIO
WILLIAMSON COUNTY											
Marion	2209 W. Main	7821		0	0	.092	.082	.044	.036	.007	2.87

SHORT-TERM TRENDS FOR SULFUR DIOXIDE

STATION	ADDRESS	ANNUAL MEAN (PPM)						
		1975	1976	1977	1978	1979	1980	198
WILLIAMSON COUNTY								
Marion	2209 W. Main	+	.013	.014	.013	.010	.009	.00

OZONE
(PARTS PER MILLION)

STATION	ADDRESS	NO. OF SAMPLES		HIGHEST SAMPLES (PPM)									
		TOTAL	>.08 PPM	DAYS >.12	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	ANNUAL 1st	ANNUAL 2nd
CRAWFORD COUNTY													
Robinson	Lincoln Trail Col.	2993	1	0	.068	.082	.068	NS	NS	NS	NS	.082	.073
EFFINGHAM COUNTY													
Effingham	Rte. 45 South	3772	26	0	NS	NS	NS	.102	.086	.083	.071	.102	.087
WILLIAMSON COUNTY													
Marion	2209 W. Main	7839	17	0	.061	.063	.086	.087	.088	.081	.061	.088	.087

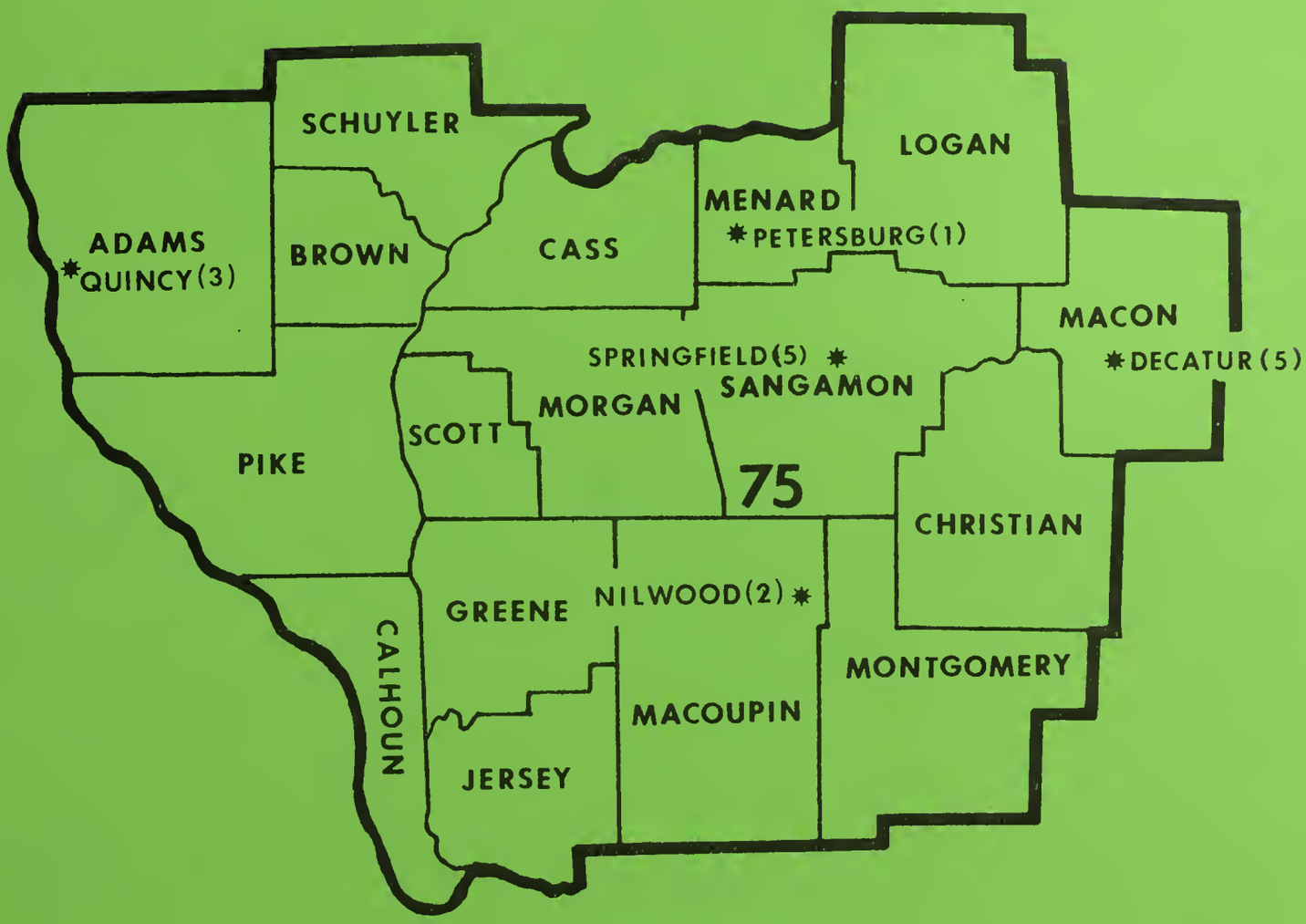
NS - No sample.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
LEAD

(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m3	QUARTERLY AVERAGES (ug/m3)				ANNUAL MEAN (ug/m3)
			1st	2nd	3rd	4th	
EFFINGHAM COUNTY							
Effingham	1015 S. Willow	0	0.14	0.06	+	+	+
JACKSON COUNTY							
Carbondale	306 W. Main St.	0	+	0.20	0.26	0.35	0.27
Carbondale	300 N. Springer	0	+	0.10	0.12	+	+
JEFFERSON COUNTY							
Mt. Vernon	601 N. 18th St.	0	0.08	+	0.11	0.22	+

AIR QUALITY CONTROL REGION 75
WEST CENTRAL ILLINOIS INTRASTATE



(The number of sampling sites in each city is shown in parenthesis following the city name.)

WEST CENTRAL ILLINOIS INTRASTATE
AIR QUALITY CONTROL REGION (AQCR) 75

Total Suspended Particulates

Eight sites recorded sufficient data for valid annual averages in this AQCR. Two of these sites (both in Decatur) exceeded the primary annual standard of 75 ug/m^3 with the 2300 Geddes site recording the highest annual average of 97 ug/m^3. Values exceeding the 24-hour primary standard of 260 ug/m^3 were recorded in Decatur - 2300 Geddes and in Petersburg. With the exception of Springfield - 2200 Churchill Road, all sites in this AQCR recorded lower TSP levels in 1981 than in 1980. Data from industrial monitoring sites in this AQCR is given in Section 6.0.

Lead

None of the sites in this AQCR recorded violations of the quarterly standard of 1.5 ug/m^3. The highest quarterly average of 0.32 ug/m^3 was recorded in Decatur at 600 East Garfield.

Sulfur Dioxide

Springfield is the only site in the AQCR to record sufficient data for a valid annual average. This site had an annual average of 0.009 ppm well below the primary annual standard of 0.03 ppm. No violations of the 3-hour or 24-hour standards were recorded in this AQCR. The highest 3-hour and 24-hour values were recorded in Springfield and were 0.317 ppm and 0.107, respectively. Data for industrial monitoring sites in this AQCR are found in Section 6.0.

Ozone

The Nilwood - IEPA trailer site recorded the only day with ozone levels above 0.12 ppm in this AQCR. The highest hourly concentration at Nilwood - IEPA trailer was 0.125 ppm. The Nilwood - Post Office site recorded the most hours above 0.08 ppm with 39.

Carbon Monoxide

Springfield recorded three excursions of the 8-hour primary standard of 9 ppm with a maximum 8-hour average of 11.1 ppm. The highest 1-hour average was 23.1 ppm below the 1-hour standard of 35 ppm. The high 1-hour and 8-hour averages recorded in Springfield were the highest of any site in the State in 1981.

Nitrogen Dioxide, Non-Methane Hydrocarbons

Data for these pollutants was not collected in this AQCR.

1981
TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
ADAMS COUNTY										
Quincy	9th & Vermont	49	1	0	163	99	99	96	58	1.4
MACON COUNTY										
Decatur	2300 Geddes	61	10	1	263	230	195	193	97	1.6
Decatur	600 E. Garfield	60	1	0	153	143	140	138	67	1.6
Decatur	750 E. Lake Shore Dr.	61	0	0	118	109	97	87	55	1.4
Decatur	1808 E. Locust	59	4	0	210	178	172	162	77	1.6
MENARD COUNTY										
Petersburg	7th & Jackson	61	4	1	372	245	186	151	62	1.7
SANGAMON COUNTY										
Springfield	2200 Churchill Rd.	47	0	0	112	110	107	96	53	1.5
Springfield	2105 E. Cook St.	53	1	0	152	116	115	110	61	1.5

SHORT-TERM TRENDS FOR TOTAL SUSPENDED PARTICULATES

STATION	ADDRESS	ANNUAL MEAN (UG/M3)						
		1975	1976	1977	1978	1979	1980	1981
ADAMS COUNTY								
Quincy	9th & Vermont	61	66	57	57	+	61	58
MACON COUNTY								
Decatur	2300 Geddes	105	122	97	109	103	112	97
Decatur	600 E. Garfield	66	81	73	85	77	75	67
Decatur	750 E. Lake Shore Dr.	-	-	67	58	60	61	55
Decatur	1808 E. Locust	-	-	-	-	-	101	77
MENARD COUNTY								
Petersburg	7th & Jackson	57	65	58	64	67	68	62
SANGAMON COUNTY								
Springfield	2200 Churchill Rd.	-	-	-	55	53	46	53
Springfield	2105 E. Cook St.	-	-	-	-	-	+	61

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
SULFUR DIOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NUMBER OF SAMPLES				HIGHEST SAMPLES (PPM)				ANNUAL STATISTICS	
		1 HR	24 HR	3-HR AVGS >.5	24-HR AVGS >.14	3-HR. AVG. 1st	3-HR. AVG. 2nd	24-HR. AVG 1st	24-HR. AVG 2nd	ARITH. MEAN	STD. GEO DEVIATIO
ADAMS COUNTY											
Quincy	732 Hampshire	5903		0	0	.207	.203	.079	.051	+	
MACON COUNTY											
Decatur	2760 N. 22nd St.	6871		0	0	.271	.225	.099	.075	+	
SANGAMON COUNTY											
Springfield	Sewage Plant	8230		0	0	.317	.220	.107	.094	.009	3.28

SHORT-TERM TRENDS FOR SULFUR DIOXIDE

STATION	ADDRESS	ANNUAL MEAN (PPM)						
		1975	1976	1977	1978	1979	1980	198
ADAMS COUNTY								
Quincy	732 Hampshire	-	-	-	-	-	-	+
MACON COUNTY								
Decatur	2760 N. 22nd St.	.014	.019	.013	.012	.008	.010	+
SANGAMON COUNTY								
Springfield	Sewage Plant	-	-	-	+	.016	.013	.00

- Station not in operation during year shown.
+ Did not meet minimum statistical selection criteria (See Section 4.1).

1981
OZONE
(PARTS PER MILLION)

STATION	ADDRESS	NO. OF SAMPLES		HIGHEST SAMPLES (PPM)									
		TOTAL	>.08 PPM	DAYS >12	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	ANNUAL 1st	ANNUAL 2nd
ADAMS COUNTY													
Quincy	1400 Highland	6636	11	0	.066	.073	.098	.084	.084	.066	.052	.098	.084
MACON COUNTY													
Decatur	2760 N. 22nd St.	5625	3	0	.074	.081	.082	.084	.070	.079	.064	.084	.082
MACOUPIN COUNTY													
Nilwood	Post Office	3042	39	0	.090	.102	.105	.098	NS	NS	NS	.105	.102
Nilwood	IEPA Trailer	1826	18	1	NS	NS	NS	.071	.125	.108	.058	.125	.108
SANGAMON COUNTY													
Springfield	2875 N. Dirksen	7858	15	0	.065	.073	.087	.080	.122	.085	.056	.122	.092

CARBON MONOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NO OF SAMPLES	NUMBER OF AVERAGES		HIGHEST					
			1 - HR > 35 PPM	8 - HR > 9 PPM	1-HR AVERAGE 1st	1-HR AVERAGE 2nd	1-HR AVERAGE 3rd	8-HR AVERAGE 1st	8-HR AVERAGE 2nd	8-HR AVERAGE 3rd
SANGAMON COUNTY										
Springfield	6th & Monroe	8098	0	3	23.1	18.6	16.2	11.1	10.9	9.8

NS - No sample.

1981
LEAD

(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF QUARTERS >1.5 ug/m3	QUARTERLY AVERAGES (ug/m3)				ANNUAL MEAN (ug/m3)
			1st	2nd	3rd	4th	
ADAMS COUNTY							
Quincy	9th & Vermont	0	0.15	0.10	0.15	0.17	0.14
MACON COUNTY							
Decatur	2300 Geddes	0	0.26	0.27	0.20	0.21	0.24
Decatur	600 E. Garfield	0	0.17	0.19	0.17	0.32	0.21
Decatur	750 E. Lake Shore Dr.	0	0.16	0.13	0.13	0.17	0.16
Decatur	1808 E. Locust	0	0.18	0.14	0.12	0.18	0.16
MENARD COUNTY							
Petersburg	7th & Jackson	0	0.16	0.09	0.08	0.16	0.12
SANGAMON COUNTY							
Springfield	2200 Churchill Rd.	0	0.09	0.10	0.11	0.16	0.11
Springfield	2105 E. Cook St.	0	0.18	0.16	0.19	0.25	0.20

6.0

INDUSTRIAL MONITORING DATA

6.0 INDUSTRIAL MONITORING DATA

All of the data presented in this Annual Report to this point was collected in the statewide Air Monitoring Network operated by IEPA and several local agencies. Other data available to IEPA are collected by various industries in the vicinity of their facilities. These networks often provide data for areas not covered by the statewide network; thus, a more complete profile of air quality in Illinois is being obtained with the industrial data. A directory of the Industrial Monitoring Network is provided in Section 3.2B. Data has been summarized in this section for total suspended particulates and sulfur dioxide.

The site at 20th and Adams in Granite City that had been an industrial monitoring site through 1980, was incorporated into the statewide monitoring network in 1981 and may be found in Section 5.0 under AQCR 70. The IEPA wishes to thank the following companies for their assistance and cooperation in making these data available.

Mobil Chemical Company
Springfield City, Water, Light and Power
Tennessee Valley Authority

6.1 TOTAL SUSPENDED PARTICULATES

The site in Metropolis was the only industrial site to collect data for a majority of the year. The data collected at this site was below all applicable primary and secondary standards with an annual average of 54 ug/m^3 and highest sample of 99 ug/m^3.

6.2 SULFUR DIOXIDE

All of the sites with sufficient data for valid annual averages recorded averages well below the annual standard of 0.03 ppm. The highest annual average was 0.014 ppm recorded at White City Park in DePue. Three sites, two in Springfield and one in Massac County, recorded excursions of the 24-hour primary standard. The Tansey site and the Massac County site (Station 23) each recorded one excursion of this standard. The Lincoln Green site was in violation of the 24-hour standard with two excursions; the highest 24-hour average was 0.300 ppm and the second highest was 0.147 ppm. None of the industrial sites recorded excursions of the 3-hour secondary standard of 0.5 ppm. The first and second highest 3-hour averages for industrial sites were recorded at Lincoln Green with levels of 0.500 ppm and 0.492 ppm, respectively.

All of the sites recorded lower annual averages in 1981 than in 1980. Less excursions of the 3-hour and 24-hour standards were also recorded. The White City Park site recorded two excursions of each standard in 1980 and none in 1981. The Lincoln Green site went from five excursions of the 24-hour standard in 1980 to two in 1981 and from two excursions of the 3-hour standard in 1980 to none in 1981.

1981
SULFUR DIOXIDE IN EXCESS OF THE PRIMARY (24-HOUR) AND SECONDARY (3-HOUR) SHORT TERM STANDARDS[Ω]

STATION	ADDRESS	DATE	AVERAGING TIME	NUMBER[✡] OF EXCURSIONS	TIME PERIOD	MAXIMUM AVERAGE (PPM)
72 PADUCAH-CAIRO INTERSTATE (KY. - ILL.)						
MASSAC COUNTY						
TVA Network: Station 23	Massac County	January 12 - 13	24-hour	1	0800-1500	0.160
75 WEST CENTRAL ILLINOIS INTRASTATE						
SANGAMON COUNTY						
Springfield CWLP Network: Lincoln Green*	Lincoln Green Golf Course	May 10 - 12	24-hour	2	0500-0500	0.300
Tansey	Tansey Ave.	June 14 - 15	24-hour	1	0800-1800	0.148

TOTAL SUSPENDED PARTICULATES
(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES			HIGHEST SAMPLES				ANNUAL STATISTICS	
		TOTAL	>150 UG/M3	>260 UG/M3	1st	2nd	3rd	4th	GEOMETRIC MEAN	STD. GEO. DEVIATION
72 PADUCAH-CAIRO INTERSTATE (KY. - ILL.)										
MASSAC COUNTY										
TVA Network: Station 11	Metropolis	56	0	0	99	95	88	85	54	1.5

Ω The 24-Hour Primary Standard is 0.14 parts per million; the 3-Hour Secondary Standard is 0.50 parts per million.
✡ Non-overlapping averages greater than the Standard.
* This station is in violation of the 24-Hour Primary Standard.
• This station is in violation of the 3-Hour Secondary Standard.

1981
SULFUR DIOXIDE
(PARTS PER MILLION)

STATION	ADDRESS	NUMBER OF SAMPLES				HIGHEST SAMPLES (PPM)				ANNUAL STATISTICS	
		1 HR	24 HR	3-HR AVGS >.5	24-HR AVGS >.14	3-HR. AVG. 1st	3-HR. AVG. 2nd	24-HR. AVG. 1st	24-HR. AVG. 2nd	ARITH. MEAN	STD. GEO. DEVIATION
71 NORTH CENTRAL ILLINOIS INTRASTATE											
BUREAU COUNTY											
Mobile Chemical Network:											
DePue	S.W. Corner of Plant	8086		0	0	.205	.196	.076	.070	.008	
DePue	White City Park	8091		0	0	.491	.418	.132	.105	.014	
72 PADUCAH-CAIRO INTERSTATE (KY. - ILL.)											
MASSAC COUNTY											
TVA Network:											
Station 11	Metropolis	8002		0	0	.230	.165	.051	.048	.009	
Station 16	Massac County	8125		0	0	.165	.161	.067	.046	.008	
Station 17	Massac County	7983		0	0	.153	.102	.045	.043	.008	
Station 18	Massac County	8605		0	0	.239	.165	.049	.045	.008	
Station 19	Massac County	8090		0	0	.224	.181	.085	.058	.008	
Station 23	Massac County	7404		0	1	.334	.269	.160	.080	.010	
75 WEST CENTRAL ILLINOIS INTRASTATE											
SANGAMON COUNTY											
Springfield CWLP Network:											
Lincoln Green	Lincoln Green Golf Course	8083		0	2	.500	.492	.300	.147	.008	
Tansey	Tansey Ave.	6395		0	1	.345	.338	.148	.122	+	
Mavis	Oak Hills Rd.	6580		0	0	.252	.245	.125	.047	+	
Groth	Groth St.	6325		0	0	.367	.337	.107	.092	+	

+ Did not meet minimum statistical selection criteria (See Section 4.1).

7.0

SULFATES, NITRATES AND METALS DATA

7.0 SULFATES, NITRATES AND METALS DATA

This section presents the results of statewide high-volume (hi-vol) sampling with subsequent analysis for ambient concentrations of sulfates (SO_4), nitrates (NO_3), fluoride (F), iron (Fe), arsenic (As), manganese (Mn) and cadmium (Cd). The data has been summarized by sites within each Air Quality Control Region (AQCR) and the concentrations have been presented as an annual arithmetic average in micrograms per cubic meter in ambient air.

7.1 SULFATES

The highest annual average sulfate concentration in 1981 was 17.0 ug/m^3 recorded in Granite City at the Norfolk and Western site. The second highest sulfate concentration 16.8 ug/m^3, was also recorded in Granite City at 2001 East 20th. The Chicago metropolitan area recorded a slight decrease in sulfate concentrations from 1980 to 1981 while the remainder of the State recorded similar concentrations for both years. The highest concentrations recorded in 1980 were from southern Cook County with the high being 19.6 ug/m^3 at Blue Island.

7.2 NITRATES

The highest annual average nitrate concentration in 1981 was recorded in Cicero with an 8.4 ug/m^3 average followed by an 8.0 ug/m^3 average at Blue Island. These values are higher than the 1980 high of 6.9 ug/m^3 at Joliet - 1425 North Broadway and the 1979 high of 7.7 ug/m^3 at Rockdale. Historically, the highest nitrate averages statewide have been found near the heavily industrialized area of Joliet and southern Cook County/southside Chicago. In 1981 all 14 sites recording average nitrate concentrations of 7.0 ug/m^3 or greater were located in Cook County. These sites are located in all areas of the county not just in the industrialized parts.

7.3 METALS

Sites in Granite City continue to record the highest metals concentrations of any sites statewide. This situation has been generally true since statewide metals analysis began in 1977. The Granite City sites recording statewide highs were: 10.59 ug/m^3 of iron at 2001 East 20th, .714 ug/m^3 of fluoride at 2001 East 20th, .035 ug/m^3 of arsenic at 15th and Madison and 1.126 ug/m^3 of manganese at 2001 East 20th. The highest annual average for cadmium was also recorded in the East St. Louis Metro area at the East St. Louis site with an average of .0167 ug/m^3. The highest values recorded for these metals in 1981 were higher than the peak levels recorded in 1980.

1981
SULFATES, NITRATES & METALS
(MICROGRAMS PER CUBIC METER)[1]

STATION	ADDRESS	NO. OF[2] SAMPLES	$SO_4^=$	NO_3^-	Fe	Cu	As	Mn	Be
65 BURLINGTON-KEOKUK INTERSTATE (IOWA - ILL.)									
East Peoria	235 E. Washington	11	12.0	5.7	.089	.70	.002	.046	.0003
Galesburg	40 E. Simmons	11	9.5	5.0	.008	.58	.001	.035	.0006
Pekin	531 Court	11	11.2	5.5	.005	.57	.001	.040	.0015
Peoria	610 N.E. Jefferson	9	12.7	5.9	.014	.84	.002	.049	.0034
Peoria	2711 S.W. Jefferson	8	+	+	+	+	+	+	+
Peoria	1604 Detweiller	10	11.9	5.6	.006	.52	.002	.034	.0006
66 EAST CENTRAL ILLINOIS INTRASTATE									
Bloomington	301 W. Washington	6	+	+	+	+	+	+	+
Champaign	2125 S. First	10	12.4	5.1	+	.40	.001	.025	.0000
67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.)									
Addison	130 w. Army Trail Rd.	12	11.2	5.5	.072	.59	.002	.035	.0001
Alsip	4500 W. 123rd St.	12	10.3	6.0	-	.49	-	.033	-
Arlington Hts.	33 S. Arlington Hts. Rd.	12	12.4	6.9	-	.58	-	.031	-
Aurora	770 N. Michels	11	11.7	5.8	.049	.43	.001	.027	.0012
Bedford Park	6535 S. Central	12	13.2	6.4	.068	1.24	.003	.060	.0059
Bensenville	Main & York	12	10.5	5.2	.058	.92	.002	.043	.0011
Blue Island	12700 Sacramento	12	15.7	8.0		.95		.076	
Bradley	610 E. Liberty	10	12.4	5.8	.014	.58	.002	.044	.0009
Braidwood	Sewage Plant	11	11.0	5.0	.015	.53	.002	.029	.0007
Calumet City	755 Pulaski Rd.	12	14.4	7.2	-	.84	-	.089	-
Cary	First & Three Oaks Rd.	12	10.6	5.5	.000	.42	.002	.027	.0008
Chicago Heights	Dixie Hwy. & 10th St.	12	13.3	7.0	-	.56	-	.42	-
Cicero	15th St. & 50th Ave.	12	13.5	8.4	-	.95	-	.056	-
Darien	1410 75th St.	11	10.9	4.6	+	.44	.002	.031	.0010
Des Plaines	1755 S. Wolf Rd.	12	12.4	7.3	-	.49	-	.028	-
Elgin	150 Dexter	10	10.3	5.7	.041	.64	.002	.053	.0006
Elmhurst	118 Schiller	12	11.3	5.4	.048	.76	.002	.037	.0004
Evanston	1454 Elmwood	11	11.3	5.7	.044	.64	.002	.040	.0008
Flossmoor	999 Kedzie	12	14.0	7.2	-	.60	-	.042	-
Franklin Park	3400 N. Rose St.	12	13.0	7.9	-	.73	-	.041	-
Glen Ellyn	494 Pennsylvania St.	12	9.9	5.1	.032	.54	.002	.032	.0015
Harvey	157th & Lexington	12	13.7	7.1	-	.83	-	.061	-
Hillside	Wolf Rd. & Harrison	12	13.1	7.8	-	.62	-	.037	-
Joliet	Midland & Campbell Sts.	12	11.7	5.3	.097	.72	.002	.043	.0010
Joliet	1425 N. Broadway	11	12.2	5.9	+	.80	.002	.042	.0008
Joliet	1216 Houbolt St.	10	12.0	5.6	.090	.49	.002	.034	.0005
Joliet	501 Ella Ave.	9	12.7	5.5	.046	.60	.002	.032	.0007
Lake Bluff	121 E. Sheridan Pl.	10	10.4	4.8	.015	.37	.001	.027	.0004
Lockport	5th & Madison	12	11.9	5.0	.050	.46	.002	.033	.0005
Lyons	4043 Joliet Ave.	12	13.8	7.8		.63		.037	
McCook	50th St. & Glencoe	3	+	+	+	+	+	+	+
Midlothian	15202 Crawford Ave.	12	12.2	5.6	-	.47	-	.033	-
Monee	432 E. Main St.	9	12.6	5.3	+	.61	.002	.042	.0008
Morton Grove	9111 Waukegan Rd.	12	11.6	6.7	-	.50	-	.031	-
Naperville	175 Jackson St.	12	11.3	5.3	.040	.76	.002	.034	.0007
Niles	8955 Greenwood Ave.	12	12.2	7.6	-	.50	-	.032	-
Oak Park	834 Lake St.	12	10.7	6.1	-	.54	-	.035	-
Orland Park	133rd & LaGrange Rd.	8	+	+	-	+	-	.032	-

+ Did not meet minimum statistical selection criteria (See Section 4.1).

[1] All values expressed as annual arithmetic mean.

[2] Number of monthly composites.

1981
SULFATES, NITRATES & METALS
(MICROGRAMS PER CUBIC METER)[1]

STATION	ADDRESS	NO. OF[2] SAMPLES	$SO_4^=$	NO_3^-	Fe	Cu	As	Mn	Be
Palatine	1000 Quentin Rd.	12	12.5	7.7	-	.47	-	.029	-
River Forest	Lathrop & Oak	12	12.7	7.6	-	.62	-	.037	-
Rockdale	Volunteer Fire Dept.	11	12.1	5.7	.155	.64	.002	.036	.0007
Romeoville	Naperville Rd.	10	11.0	5.0	.022	.40	.001	.030	.0005
Summit	60th St. & 74th Ave.	12	12.4	6.9	-	.75	-	.043	-
Waukegan	106 Utica	8	+	+	+	+	+	+	+
Waukegan	Golf & Jackson	11	11.5	4.9	.000	.36	.002	.031	.0008
West Chicago	128 W. McConnell Ave.	12	10.3	4.8	.025	.77	.002	.034	.0020
Wheaton	201 Reber St.	12	11.9	5.4	.047	.63	.002	.032	.0005
Wilmette	9th St. & Central Ave.	12	12.0	7.0	-	.41	-	.029	-
Winnetka	1112 Willow Rd.	7	+	+	+	+	+	+	+
68 METROPOLITAN DUBUQUE INTERSTATE (IOWA - ILL. - WIS.)									
Galena	S. Commerce	10	9.0	4.4	+	.92	.001	.073	.0045
69 METROPOLITAN QUAD CITIES INTERSTATE (ILL. - IOWA)									
East Moline	915 16th Ave.	9	12.2	4.9	+	.72	.002	.052	.0005
East Moline	1400 13th St.	11	10.7	5.1	.010	.63	.001	.045	.0003
Milan	125 W. 2nd Ave.	11	10.5	4.7	.000	.57	.001	.066	.0004
Moline	3600 23rd Ave.	10	10.6	4.8	+	.40	.001	.031	.0005
Rock Island	1528 3rd Ave.	11	11.6	6.0	.008	.62	.002	.053	.0012
Rock Island	1400 25th Ave.	7	+	+	+	+	+	+	+
70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.)									
Alton	103 E. 3rd St.	11	12.9	5.1	+	.84	.003	.071	.0046
Belleville	101 S. Illinois	12	11.7	5.2	.073	.52	.002	.033	.0024
Cahokia	1201 St. Clement	12	11.6	5.0	.028	.56	.002	.035	.0035
Collinsville	115A W. Main	12	11.7	5.1	+	.63	.002	.052	.0019
Columbia	208 S. Rapp	7	+	+	+	+	+	+	+
East St. Louis	13th & Tudor	12	13.4	5.3	.074	1.41	.010	.104	.0167
Edwardsville	Poag Rd.	12	11.8	5.5	.024	.54	.003	.039	.0030
Granite City	23rd & Madison	12	14.3	5.9	.324	3.57	.006	.303	.0052
Granite City	3201 E. 23rd	5	+	+	+	+	+	+	+
Granite City	2001 E. 20th	12	16.8	5.2	.714	10.59	.009	1.126	.0047
Granite City	15th & Madison	12	14.3	5.6	.141	2.88	.035	.277	.0153
Granite City	Roosevelt & Rock Rd.	12	12.5	5.2	.104	2.31	.010	.153	.0067
Granite City	Norfolk & Western	11	17.0	5.8	+	6.34	.007	.337	.0052
Granite City	2040 Johnson Ave.	12	12.2	5.3	.061	.98	.004	.077	.0035
Granite City	23rd & Nameoki	12	13.4	5.5	.105	2.33	.005	.162	.0046
Waterloo	U.S.D.A. Building	12	11.7	4.9	.032	.38	.001	.029	.0023
Wood River	54 N. Walcott	11	13.1	5.8	.066	1.04	.004	.064	.0045
71 NORTH CENTRAL ILLINOIS INTRASTATE									
DePue	1401 Marquette	12	13.1	5.1	.287	.39	.001	.029	.0006
Ottawa	211 E. Main	12	11.3	5.5	.016	.43	.002	.027	.0065

+ Did not meet minimum statistical selection criteria (See Section 4.1).

[1] All values expressed as annual arithmetic mean.

[2] Number of monthly composites.

1981
SULFATES, NITRATES & METALS
(MICROGRAMS PER CUBIC METER)[1]

STATION	ADDRESS	NO. OF SAMPLES[2]	$SO_4^{=}$	NO_3^{-}	Fe	Cu	As	Mn	Be
73 ROCKFORD-JANESVILLE-BELOIT INTERSTATE (ILL. - WIS.)									
DeKalb	650 N. 1st St.	10	11.6	6.3	+	.39	.001	.029	.0004
Rockford	204 S. First	8	+	+	+	+	+	+	+
Rockford	333 15th St.	10	9.6	5.4	.156	.62	.001	.066	.0078
South Beloit	Wheeler Ave. at Washington	11	10.1	5.3	.014	.58	.001	.057	.0012
74 SOUTHEAST ILLINOIS INTRASTATE									
Carbondale	306 W. Main St.	10	12.2	4.0	.035	.61	.002	.038	.0010
Carbondale	300 N. Springer	7	+	+	+	+	+	+	+
Effingham	1015 S. Willow	5	+	+	+	+	+	+	+
Mt. Vernon	601 N. 18th St.	8	+	+	+	+	+	+	+
75 WEST CENTRAL ILLINOIS INTRASTATE									
Decatur	2300 Geddes	12	15.2	4.4	.046	.92	.006	.046	.0008
Decatur	600 E. Garfield	12	12.1	5.1	.043	.79	.002	.044	.0005
Decatur	750 E. Lake Shore Dr.	12	12.0	5.4	.005	.41	.002	.027	.0004
Decatur	1808 E. Locust	12	12.8	4.1	.016	.86	.004	.040	.0007
Petersburg	7th & Jackson	12	10.8	5.7	.000	.60	.002	.042	.0010
Quincy	9th & Vermont	10	10.3	4.4	.000	.38	.002	.089	.0006
Springfield	2200 Churhill Rd.	11	10.9	4.8	.008	.37	.001	.028	.0012
Springfield	2105 E. Cook St.	12	12.2	5.3	.000	.46	.002	.032	.0012

+ Did not meet minimum statistical selection criteria (See Section 4.1).

[1] All values expressed as annual arithmetic mean.

[2] Number of monthly composites.

8.0

INHALABLE PARTICULATE DATA

8.0 INHALABLE PARTICULATE DATA

The Illinois EPA began monitoring for inhalable particulates (IP) in late 1980 at the Springfield site and by mid 1981 six additional monitoring sites had been implemented. These sites were chosen to provide a representative sampling of the State, both geographically and by source influence. Another reason for the establishment of an IP monitoring network by the Illinos EPA was to provide a historical IP data base that may be utilized should a revision of the TSP standard or the statewide particulate monitoring network become necessary.

The sites in Springfield and Rockford were the only ones to record valid annual averages, with Rockford having an annual arithmetic mean of 47 ug/m^3 and Springfield 40 ug/m^3. Granite City - 2001 E. 20th recorded the highest individual samples with first and second highs of 282 ug/m^3 and 255 ug/m^3.

1981
INHALABLE PARTICULATES

(MICROGRAMS PER CUBIC METER)

STATION	ADDRESS	NUMBER OF SAMPLES	HIGHEST SAMPLES				ANNUAL STATISTICS
			1st	2nd	3rd	4th	ARITHMETIC MEAN
65 BURLINGTON-KEOKUK INTERSTATE (IOWA - ILL.)							
PEORIA COUNTY							
Peoria	610 N.E. Jefferson	29	116	84	81	76	+
67 METROPOLITAN CHICAGO INTERSTATE (ILL. - IND.)							
WILL COUNTY							
Joliet	Midland & Campbell	40	148	129	103	100	+
69 METROPOLITAN QUAD CITIES INTERSTATE (ILL. - IOWA)							
ROCK ISLAND COUNTY							
East Moline	1400 13th St.	48	96	87	84	82	+
70 METROPOLITAN ST. LOUIS INTERSTATE (ILL. - MO.)							
MADISON COUNTY							
Granite City	23rd & Madison	29	142	129	127	113	+
Granite City	2001 E. 20th	16	282	255	177	161	+
73 ROCKFORD-JANESVILLE-BELOIT INTERSTATE (ILL. - WIS.)							
WINNEBAGO COUNTY							
Rockford	333 15th St.	55	124	92	90	83	47
75 WEST CENTRAL ILLINOIS INTRASTATE							
SANGAMON COUNTY							
Springfield	2200 Churchill Rd.	86	87	85	78	76	40

+ Did not meet minimum statistical selection criteria (See Section 4.1).

APPENDICES

APPENDIX A

STATISTICAL METHODS

I. LOG-NORMAL STATISTICS

The following is a list of symbols used in various formulas:

n - the total number of samples used

x_i - the concentration of each individual sample

ln - the natural logarithm function (log to base e)

exp - the exponential function (inverse of the ln function)

$\sum_i$ - the total summation of the appropriate values

$\overline{X}$ - arithmetic mean

$\overline{X}g$ - geometric mean

Sg - standard geometric deviation

Arithmetic Mean:

$$\overline{X} = \frac{1}{n} \sum_i x_i$$

Geometric Mean:

$$\overline{X}g = \exp\left(\frac{1}{n} \sum_i \ln x_i\right)$$

The arithmetic mean is always equal to or greater than the geometric mean.

Standard Geometric Deviation:

$$Sg = \exp\left[\frac{1}{n-1}\left(\sum_i (\ln x_i)^2 - \frac{1}{n}\left(\sum_i \ln x_i\right)^2\right)\right]^{1/2}$$

Arithmetic Mean to Geometric Mean:

The following relationship exists between the arithmetic mean, geometric mean, and standard geometric deviation. By knowing two of the values, the third can be calculated.

$$\overline{X}g = \frac{\overline{X}}{\exp\left(0.5\ (\ln Sg)^2\right)}$$

Maximum and Second High Predicted 24-Hour Concentrations:

For a geometric mean $\overline{X}g$ and standard geometric deviation Sg, based on a log-normal distribution of pollutants collected throughout the year, the maximum and 2nd high predicted for the year out of a total of 365 possible data values is given by:

$$C_{max} = \overline{X}g\ (Sg)^{2.94}$$

$$C_{2nd} = \overline{X}g\ (Sg)^{2.63}$$

Example 1: For $\overline{X}g$ = ug/m^3 and Sg = 1.5

$$C_{max} = 70\ ug/m^3\ (1.5)^{2.92} = 231\ ug/m^3$$

$$C_{2nd} = 70\ ug/m^3\ (1.5)^{2.63} = 203\ ug/m^3$$

II. DANIEL'S TEST FOR TRENDS USING SPEARMAN RANK CORRELATION COEFFICIENT

The test statistic, p, is given by:

$$p = 1 - \frac{6\ T}{n\ (n^2 - 1)}$$

where

$$T = \sum_i \left(R\ (x_i) - i\right)^2$$

n is the number of years in the trend.

$R\ (x_i)$ is the rank of the concentration x_i, 1 being the lowest concentration.

i is the order of the year, 1 being the first year.

Compare $|p|$ with the Spearman Statistic, Wp, as given in the table below for the 90% confidence level. The interpretation of this significance level is that if a trend does not exist, 10 out of 100 times this test will falsely predict a trend.

TABLE

Number of Trend Year	4	5	6	7	8	9	10
Wp, 90% confidence level	.8000	.8000	.7714	.6786	.6190	.5855	.5515

The trend is determined to exist if $|p| > Wp$

For $p > 0$ then the trend is upward

For $p < 0$ then the trend is downward.

To illustrate the use of this procedure, two examples are given.

Example 2:

Year:	1975	1976	1977	1978	1979	1980	1981
Data (x_i)	79	82	80	68	63	66	53
R (x_i)	5	7	6	4	2	3	1
	1	2	3	4	5	6	7

$n = 7$

$T = (5-1)^2 + (7-2)^2 + (6-3)^2 + (4-4)^2 + (2-5)^2 + (3-6)^2 + (1-7)^2 = 104$

$$p = 1 - \frac{6\,(104)}{7\,(7^2 - 1)} = -.8571$$

$|p| = .8571$ which is greater than Wp for $n = 7$ from the Table, thus the trend is established. Since p is negative, the trend is downward.

Example 3:

Year:	1975	1976	1977	1978	1979	1980	1981
Data (x_i)	89	86	78	80	93	87	73
R (x_i)	6	4	2	3	7	5	1
	1	2	3	4	5	6	7

$n = 7$

$T = (6-1)^2 + (4-2)^2 + (2-3)^2 + (3-4)^2 + (7-5)^2 + (5-6)^2 + (1-7)^2 = 72$

$$p = 1 - \frac{6\,(72)}{7\,(7^2 - 1)} = -.2857$$

$|p| = .2857$ which is less than WP for n = 7 from the Table. Thus no trend can be determined.

III. PRECISION OF NONCONTINUOUS SAMPLING

The following formulas are from Hunt (1972) and provide the difference between the geometric mean and the upper and lower confidence limits as a fraction of the geometric mean.

Lower limit fraction

$$m_1 = 1 - \exp\left[-t_{.025} \frac{\ln Sg}{n^{1/2}} \left(1 - \frac{n}{N}\right)^{1/2}\right]$$

Upper limit fraction

$$m_2 = \exp\left[t_{.025} \frac{\ln Sg}{n^{1/2}} \left(1 - \frac{n}{N}\right)^{1/2}\right] - 1$$

Sg is the geometric standard deviation

n is the number of samples taken during the year

N is the total possible number of samples (for 1 year, N = 365)

$t_{.025}$ is the "t" statistic for n-1 degrees of freedom at the 95% confidence level.

The lower confidence limit is obtained by multiplying the geometric mean by m_1 and subtracting the result from the geometric mean. Likewise the upper confidence limit is obtained by multiplying the geometric mean by m_2 and adding the result to the geometric mean.

Example 4: Geometric mean = 66

Geometric standard deviation = 1.67

Number of samples n = 61

"t" statistic for 60 degrees of freedom $t_{.025} = 2.000$

$$m_1 = 1 - \exp\left[-2.000 \frac{.513}{61^{1/2}} \left(1 - \frac{61}{365}\right)^{1/2}\right] = .113$$

$$m_2 = \exp\left[2.000 \frac{.513}{61^{1/2}} \left(1 - \frac{61}{365}\right)^{1/2}\right] - 1 = .127$$

lower limit = 66 - (.113) 66 = 59

upper limit = 66 + (.127) 66 = 74

Thus, because sampling occurred only once every six days, the true annual mean is between 59 ug/m^3 and 74 ug/m^3 at the 95% confidence level.

APPENDIX B

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Annual Air Quality Data Summary

16. Abstract (Limit: 200 words)

This document summarizes ambient air quality measurements obtained in Illinois during the calendar year of 1981. The report discusses air quality data obtained for each site, provides statistical summaries, details air quality violations and provides trend data where available. Background information is included concerning sources of air pollutants, health effects, air quality standards and ambient monitoring methodologies.

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